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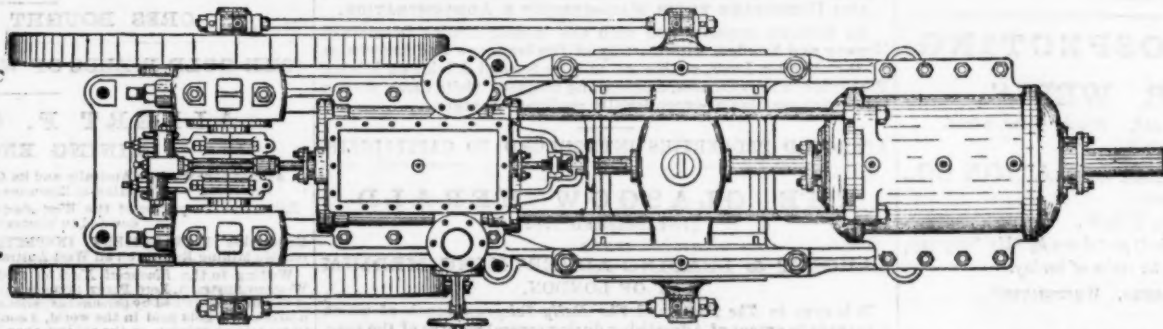
## INDEX TO ADVERTISEMENTS.

(THOSE WITHOUT NUMBER OF PAGE DO NOT APPEAR IN THIS ISSUE.)

	PAGE		PAGE		PAGE
Aird, J. .... Tubes	753	Frictionless Engine Packing Company ... Engine Packing, &c.	753	Pass and Son ... Buyers of Lead Ashes, &c.	766
Ashbury Railway Carriage and Iron Co. (Ltd.) Railway Carriages, &c.	753	Galloway's (Ltd.) ... Steam Boilers	758	Phosphor Bronze Co. (Ltd.) ... Bulls Metal, &c.	780
Austin, J. B. .... Mineralogist	753	Gates Ironworks Co. ... Rock and Ore Breaker	775	Piggott and Co. ... Welded and Rivetted Pipes	778
		Gilkes and Co. ... Turbines	778	Publications ...	778
Banfield, H. W. .... Agent for Foreign Houses, &c.	753	Green, G. ... Ore Dressing Machinery	756	Robey and Co. ... Engines and Ore Crushers	779
Bank of Africa, (Ltd.) ...	776	Halse, E. ... Mining Engineer	753	Roburite Explosives Co. (Ltd.) ... Explosives	780
Banking ...	776	Hett, O. L. ... Turbines	777	Ropeways Syndicate ... Aerial Wire Ropeways	780
Bennett, Sons, and Co. ... Fuse Manufacturers	756	Holman Bros. ... Rock Drills and Compressors	757	Rose, James ... New Guide to the Iron Trade	776
Bewee-Scott and Western ... Mining Machinery	756	Howes, S. ... Turbines	777	Sales by Auction ...	775
Bute Works Supply Company (Limited) ... Steel Rails, &c.	775	Humboldt Engineering Works Co. ... Mining Machinery	753	Schram and Co. ... Rock Drills and Compressors	756
Business Cards ...	775	Humble, S., jun. ... Hand Power Fan	753	Seward, William ... Share Dealer	753
		Huntington, Professor ... Instruction in Assaying	753	Shipping ... Mining Agent	753
Campbell-Johnston, R. C. ... Mining Engineer	753	Ingersoll-Sergeant Drill Co. of America, Rock Drills and Compressors	754	Smith, Chas. ... Investments, &c.	753
Calvert, Albert E. ... Mining Engineer	753	Ireland, James ... Colliery Ready-Reckoner	778	South African Trust and Finance Co. (Ltd.) ... Iron and Steel Tubes	754
Cannock Chase Colliery Company ... Coal Exporters	777	Jonas, J. A. ... Mining Engineer	753	Spencer, John ... Mathematical Instruments	756
Cassel Gold Extracting Co. (Ltd.) ... MacArthur-Forrest Process	777	Jose, Ford and Co. ... Shipping Agents	758	Stewart and Clydesdale ... Iron and Steel Tubes	756
Champion Rock Borer Co. ... The "Rapid" Sampler	755	Killo, B. ... Assay Office	753	Symons, Brenton ... Mining Engineer	753
Clarkson, T. ... Dry Concentration	757	Krupp Grusonwerk ... Ore Extraction Machinery	753	Tacknote ... Form of Licence to Explore	776
Clarkson-Stewart Concentrator (Ltd.) ...	775	Larnuth, T., and Co. ... Mining Machinery	753	Tangyes Limited ... Engines, &c.	775
Companies and Legal Announcements ...	753	Lancashire Patent Belting Co. ... Mining Specialties	753	To Let ...	775
Cornforth and Co. ... Share Dealers	753	Lancaster and Tonge ... Steam Pistons	755	Tuck and Co. (Ltd.) ... Packing Manufacturers	780
Cotton Powder Co. (Ltd.) ... Explosives	780	Lewis and Sons ... Tubes	754	United Asbestos Co. (Ltd.) ... Asbestos	777
		Lloyd and Lloyd ... Tubes	754	Unity Safety Fuse Co. ... Safety Fuse	777
Davey, Farman and Co. ... Mining Machinery	753	Maclean, J. Grant ... Share and Iron Broker	753	Vivian's Boring Co. (Ltd.) ... Boring Machinery	753
Davis, Henry ... Mining Engineer	757	Marsden, H. R. ... Stone Breakers and Ore Crushers	780	Walker Brothers ... Air Compressing Engines	756
Davis and Son ... Mining, &c., Instruments	757	Martin and Pethybridge ... Assay Laboratory	753	Wanted ...	775
Davis and Son ... Mining and Civil Engineers	753	Merry and Co. ... Assayers	756	Watson, P. and Co. ... Share Dealers	753
Daw, A. and Z. ... Rock Drills	778	Merton and Co. ... Aluminium	756	Wellington and Co. ... Rock Drills	779
Daw, A. and Z. ... Metal	780	Newton, Chambers and Co. (Ltd.) ... "Izal," Sanitary Protection	779	Weatherdon, J. H. ... "Monarch" Rock Drill	778
Delta Metal Co. (Ltd.) ...	780	Nobel's Explosives Co. (Ltd.) ... Water Cartridges, &c.	779	White, William ... Mining Engineer	778
Dixon and Co. ... Iron Roofs and Buildings	778	Pacific Mining Agency and Trust Company... Commission Agency	768	Wiggin and Co. (Ltd.) ... Nickel Refiners	766
Elliman, Sons, and Co. ... Embrocation	778	Parkin ... Signal Bells	777	Wood, Charles ... Portable Railways, &c.	755
Felten and Guilleaume ... Wire Ropes, &c.	775				
For Sale ...	775				
Francis and Jenkins ... Copper Works Ladies	754				
Fraser and Chalmers (Ltd.) ... Mining Machinery	754				

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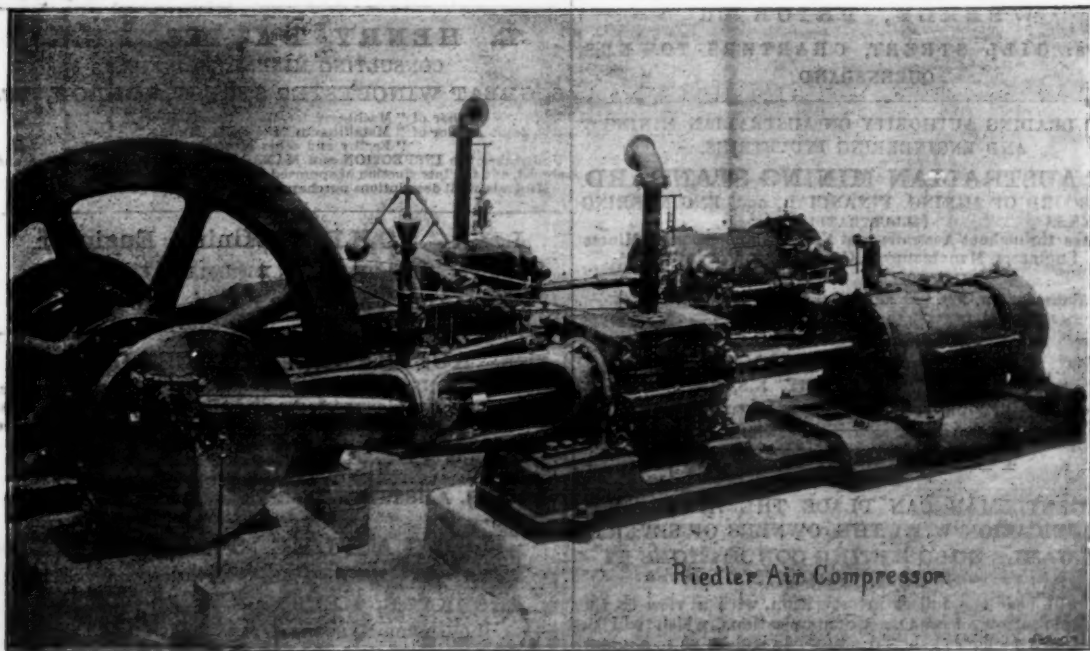
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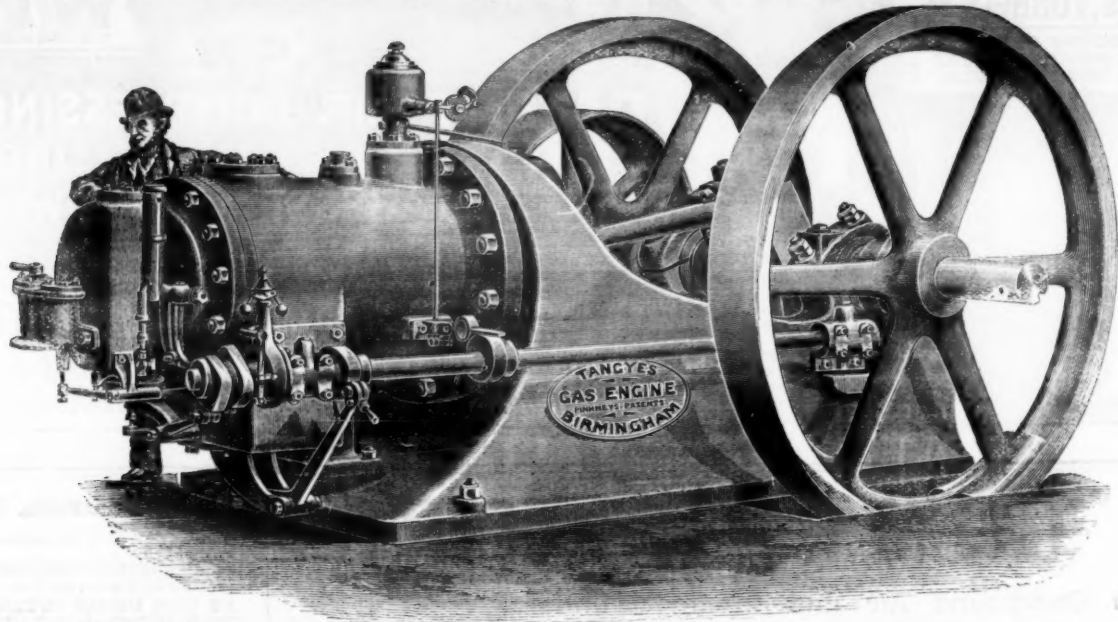
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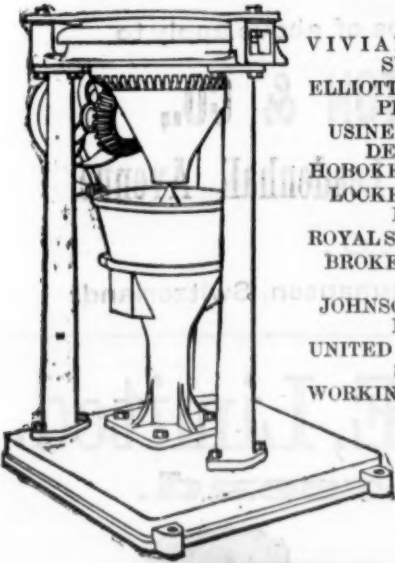
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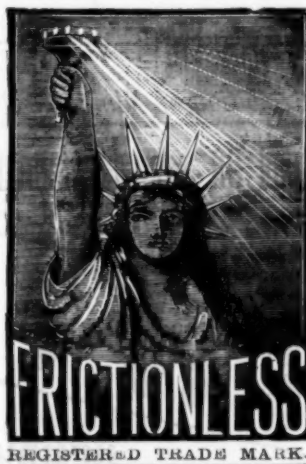
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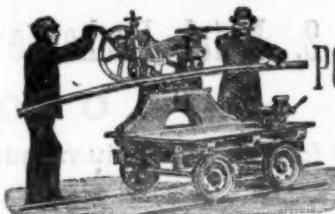
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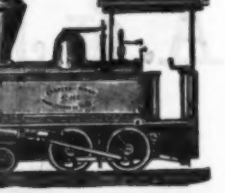
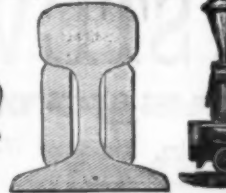
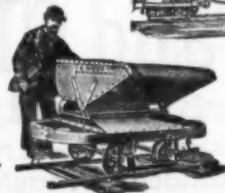
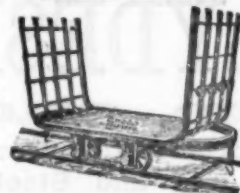
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upwards of 400 of the above now AT WORK indicating in the aggregate 150,000 Horse Power

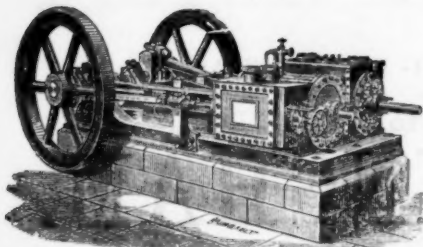
**Fisher & Walkers' Patent Friction Clutch & Underground Haulage Machinery**  
 THIS GEARING IS NOW EXTENSIVELY IN USE FOR HAULAGE PURPOSES. \*

The objects attained are SIMPLICITY, ENDURANCE OF THE MACHINERY AND ROPES with a MINIMUM EXPENDITURE OF POWER.

## AIR COMPRESSORS

With Compound Air and Steam Cylinders,

Fitted with SCHRAM'S Inlet and Outlet Valves giving the greatest efficiency.



### SCHRAM'S IMPROVED Rock Boring Machines.

Supplied to the Indian, Colonial, and other Governments.  
 2500 IN USE in all PARTS of the WORLD.

#### DIAMOND PROSPECTING DRILLS.

#### "OPTIMUS" COMPOUND ROCK DRILL.

(P. J. OGLES PATENT.)

Consumes 40 per cent. less Compressed Air than any other Drill at the same time giving the most effectual results.

ESTIMATES AND FULL PARTICULARS ON APPLICATION.

**RICHARD SCHRAM & CO., 17a, Great George Street, Westminster, S.W.**

TELEGRAMS: "SCHRAM, LONDON," A1, A.B.C. and The Engineering Telegraph Codes Used.

Telegrams—Green, Foundry, Aberystwyth.

SILVER MEDALS AWARDED AT THE ROYAL CORNWALL POLYTECHNIC, 1873 & 1876; GOLD MEDAL AWARDED AT THE GREAT INTERNATIONAL MINING EXHIBITION, CRYSTAL PALACE, 1890.

ONLY AWARDS GIVEN FOR CONCENTRATION PLANTS

#### GEORGE GREEN'S PATENT Self-Acting or Automatic Ore Dressing Machinery,

A Special Plant, on a reduced scale, has been erected at the Works by which samples of METALLIC ORES—up to Five Tons may be treated, and the commercial value determined, in this way the most suitable arrangement of Plant is ascertained, a considerable advantage to intending Purchasers of Crushing and Concentrating Plant.

GOLD STAMP AND OTHER MILLS.

**GEORGE GREEN,**  
 THE FOUNDRY, ABERYSTWYTH.

Gold Medal, International Exhibition, Paris, 1889.

Gold Medal, Exhibition of Mining & Metallurgy, London, 1890.

**PURE ALUMINIUM** 98 to 99½ per cent. pure; guaranteed 98 per cent. minimum.

**FERRO-ALUMINIUM, ALUMINIUM BRONZE, &c.,**

For Iron and Steel Workers,

Founders, Engineers,

And all Metal Workers.

# ALUMINIUM.

For prices of above apply to

**HENRY R. MERTON & CO.,**

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Sole Agents in Great Britain and Ireland for the Aluminium Industry, Co., Neuhausen, Switzerland.

## A. & J. STEWART and CLYDESDALE, Limited.

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WROUGHT IRON WELDED TUBES and FITTINGS for GAS, WATER, and STEAM.

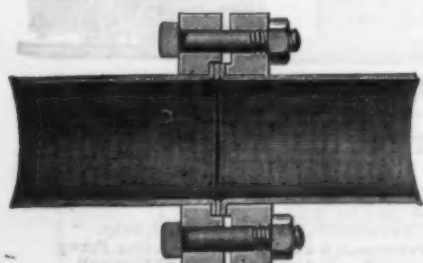
Light Lap-welded Wrought-iron and Steel Tubes

(SPECIALLY ADAPTED FOR MINES).

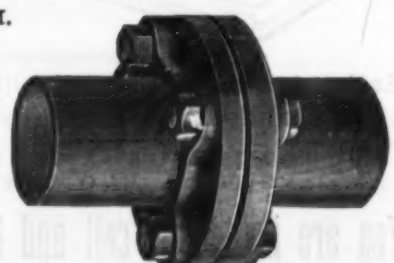
With Patent Flanged Joints (as illustrated) for the Conveyance of Water, Steam, and Air, at High and Low Pressures.

LAP-WELDED IRON AND STEEL BOILER TUBES  
 FOR LOCOMOTIVE, MARINE, AND OTHER MULTITUBULAR BOILERS.

**STEEL & IRON PLATES FOR BOILERS, BRIDGES, &c.**



SECTION OF PATENT FLANGED JOINT



PLAN OF PATENT FLANGED JOINT.

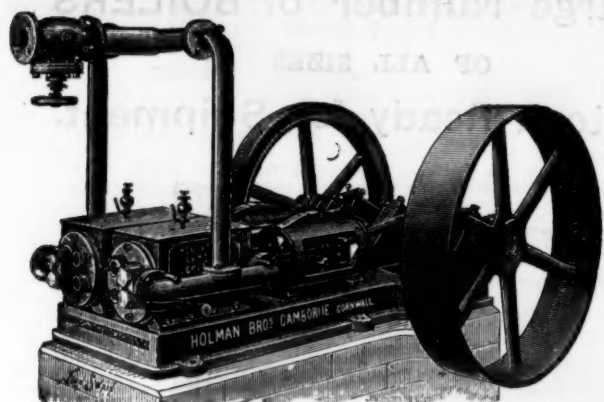
Head Offices: 41, OSWALD STREET, GLASGOW.



# HOLMAN Bros., Camborne, Cornwall.

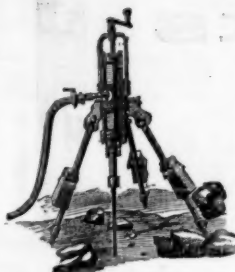
ESTABLISHED 1839.

**Patentees and Sole Makers of**  
**"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR.**



FIRST  
SILVER MEDAL,  
Highest Award,  
Mining Institute  
Contest, 1881.

Three Makers  
represented.



FIRST  
SILVER MEDAL  
Highest Award,  
Royal Cornwall  
Polytechnic  
Jubilee Exhibition  
Contest, 1882.

Five Makers  
represented.

AWARDED SILVER MEDAL INTERNATIONAL  
INVENTIONS EXHIBITION, 1885.

## RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

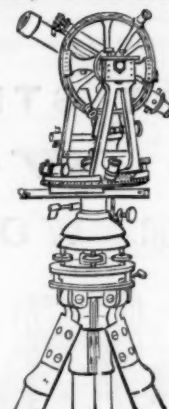
At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

Estimates for **ROCK BORING PLANT** and **GENERAL MINING MACHINERY** on Application.

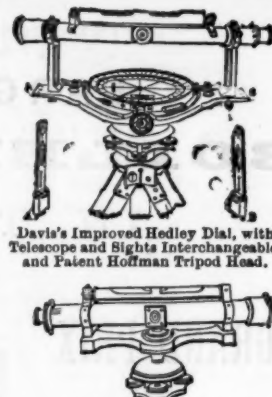
London Representative: Mr. E. M. TOUZEAU, Leadenhall Buildings, London, E.C.

# JOHN DAVIS AND SON,

ALL SAINTS WORKS, DERBY;  
118, NEWGATE STREET, LONDON.



Transit Theodolite with Patent  
Hoffman Tripod Head, and  
Trough Compass.



Dumpy Level with  
Hoffman Patent Tripod Head.

**MINING, SURVEYING AND  
ENGINEERING INSTRUMENTS.**

**THEODOLITES. LEVELS.**

Davis's Improved Hedley Miners' Dials with **HOFFMAN  
PATENT TRIPOD HEAD.**  
AND ALL DESCRIPTIONS OF MATHEMATICAL AND  
MINING SURVEYING INSTRUMENTS.

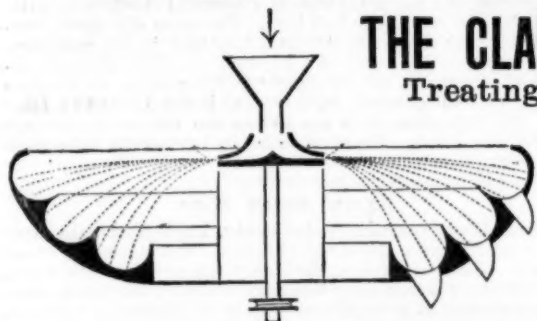
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SECTION (A) MATHEMATICAL DEPARTMENT AND SAFETY LAMPS  
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Gold Medal Awarded Mining Exhibition, 1890.  
"THE ENGINEERING TELEGRAPH CODE USED."

HENDERSON'S RAPID TRAVERSER.

**Highest Award at the Mining Exhibition, 1890.**

# DRY CONCENTRATION.



**THE CLARKSON-STANFIELD CONCENTRATOR (LIMITED)**, are successfully  
Treating the ores of Gold, Silver, Copper, Lead, Tin, Zinc, Cobalt, &c., &c. of all  
degrees of fineness, from 30 to the finest meshes by their **NEW**  
**MACHINERY** which may be seen in operation at  
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Homogeneous substances, such as Emery, Glass, Sand, Sulphur, Black  
Lead, &c., graded according to size in one operation.

Terms for Experimental Concentration, and for Supply of Machines on Application.

## NEW PATENTS.

LIST OF APPLICATIONS for New Patents relating to Mining  
Metallurgical, Engineering, Railway and kindred matters,  
specially compiled from official sources for the "Mining  
Journal" by Messrs. Rayner and Company, Patent Agents,  
37, Chancery Lane, London, W.C., who will forward all in-  
formation regarding them free on application.

- 12271 William James Whiteley, 77, Colmore Row, Birmingham.—Improvements in gas engines having slide valves.—June 26.
- 12280 William Henry Cranstone and William Robert Hay, 8, Quality Court, Chancery Lane, London.—Improvements in friction clutches.—June 26.
- 12304 George William Hawker, Bank Buildings, George Street, Sheffield.—Improvements in multiple drilling machines.—June 26.
- 12341 Harry Theo. Barnett 53, Victoria Street, Westminster.—Improvements in and connected with the distillation of zinc.—June 26.
- 12348 Orel Dighton Orvis, 45, Southampton Buildings, Chancery Lane, London.—Improvements in steam boiler furnaces.—June 26.
- 12379 William Thomas Whitman, 7, Staple Inn, London.—Improvements in water tube steam boilers.—June 26.
- 12383 Leonard Delano Davis 28, Southampton Buildings, Chancery Lane, London.—Water tube steam boiler.—June 26.
- 12393 F. Bernhard Porschmann, 18, Buckingham Street, Strand, London.—An improved feeding device for petroleum engines and the like.—June 26.
- 12403 Louis Edmond Solignac, 53, Chancery Lane, London.—Improvements in instantaneous steam generators.—June 26.
- 12420 John Lillingworth, Commercial Street, Halifax.—Improvements connected with the cutting off and slide valves of steam engines.—June 27.
- 12428 William Lockwood, 321, High Holborn, London.—An improved packing ring for pistons and the like.—June 27.
- 12423 Fred William Wheaton, 16, Geneva Road, Brixton.—Improvements in steam engine governors.—June 27.
- 12461 Frederick William Goldby, 35, Chancery Lane, London.—Improvements in heat insulating apparatus.—June 27.
- 12466 Arthur Samuel Francis Robinson, 45, Lincoln's Inn Fields, London.—Improvements in engine governors.—June 27.
- 12508 Henry Harris Lake, 45, Southampton Buildings, Chancery Lane, London.—Improvements in plug checks for marine and other boilers.—June 27.
- 12520 James Alfred Evans 116, Schofield Street, Neckells, Birmingham.—A piston for engines.—June 28.
- 12691 David Evans, 51, Gwaselodyarth Terrace, Merthyr Tydfil.—A method to further secure screw cocks of miners' safety lamps.—June 29.
- 12715 George Elliott, 323, High Holborn, London.—Improvements in or relating to water gauges for use on steam boilers.—June 29.

## SPECIFICATIONS PUBLISHED.

8954, Mays separating and purifying metals, 1893; 13511 Mellor and Ogden, wedge for breaking down coal, stone, &c., 1893; 14679, John Brown and Co., nodder boiler plates, &c., 1893; 14687, Booth and Kirk, valves for controlling flow of gas, &c., 1893; 15122, steam generators, 1893; 6263, Allison, working gold, silver, and copper ores, 1893; 7793, Smith, steam generators, 1893.

The above specifications published in 17 be had of Messrs. Rayner and Company, 37, Chancery Lane, London, at 10d. each including postage.

A GREAT BLESSING TO HUMANITY is, without doubt, a medicine composed of ingredients that, whilst it eradicates the germs of disease, strengthens the system. Holloway's Pills act in this manner, and in general debility, mental depression, and nervous irritability there is no remedy which operates so beneficially. They purify the blood, give tone to the stomach, and thoroughly regenerate the system. They are mild in operation, although most powerful in removing disease. Delicate females and young children can take them with safety and benefit. It would be difficult to enumerate all the advantages to be derived by taking these wonderful pills. No household should be without them, for there is no complaint which they cannot cure or relieve.

## CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.

"We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given."

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

## HOME CONTRACTS.

Iron and Steel Girder Work, July 17 (London, W.).—For the supply of about 130 tons of wrought iron and steel girder work for bridges for the Great Western Railway Company. Plans and specifications to be seen and bills of quantities obtained at the office of the engineer, Paddington Station.

Underframes, July 17 (India Office).—The Secretary of State for India in Council is prepared to receive tenders to supply underframes, screw couplings, &c., for carriages and wagons. The conditions of contract may be obtained on application to the Director General of Stores, India Office, Whitehall, S.W., and tenders are to be delivered at that office by 2 p.m. on 17th inst.

Waterworks, July 21 (Ballyshannon).—For laying on a water supply with all cast iron and lead piping, fittings, &c. from town main to workhouse and fever hospital, Ballyshannon, for the Guardians in accordance with plans and specifications for the same, to be obtained on application to Mr. J. B. Chism, Clerk, Poor Law Office, Ballyshannon.

Coke, July 24 (London, E.C.).—For the supply and delivery of 800 tons of gas coke, and 200 tons of hard foundry coke at Negapatnam, for the South Indian Railway Company. Tenders to be left with M. H. W. Notman, managing director, 55, Gracechurch Street, E.C.

Railway Stores, July 24 (London, S.E.).—For the supply of (1) general stores, comprising hardware, iron, metals, leather goods, oils and colours, hemp and cotton goods, glass, telegraph stores, and sundries; (2) locomotive and engineering stores, comprising boiler mountings, copper and iron plates, spiral springs, and brass boiler tubes; (3) stationery, comprising printed forms, paper, ink, tickets, and sundries, for the South Indian Railway Company (Limited). Specifications and forms of tender may be obtained at the company's offices.

Volute and Spiral Springs, July 25 (London, E.C.).—For the supply and delivery of volute and spiral springs, for the East Indian Railway Company, as per specification and drawing to be seen at the company's offices. Tenders are to be sent to Mr. A. P. Dunstan, secretary, Nicholas Lane, London, E.C., marked "Tender for Volute Spiral Springs," not later than 1 p.m. on 25th inst. For each specification a fee of 2s. is charged which cannot under any circumstances be returned.

Colliery Stores, (Tunstall, North Staffs.).—For the supply of stores and materials from August 1, for the Chatterley-Whitfield Collieries (Limited). Forms of tender and all information may be obtained at the company's offices, Tunstall, North Staffordshire. Mr. J. R. Wain, secretary.

Ironwork (London, E.C.).—For underframe and body steel and iron work for carriages and wagons, for the Bengal-Nagpur Railway Company (Limited). Specifications and forms of tender can be obtained at the company's office, 131, Gresham House, Old Broad Street.

Sinking Pit (New Skildon, Durham).—For the sinking of their Coppycrook Pit to a depth of about 90 fathoms, for the West Durham Walsend Coal Company (Limited). Specifications can be seen at the colliery offices, New Skildon.

## FOREIGN CONTRACT

Rails, &c. (Copenhagen).—For the supply of 9000 tons of rails and 1750 tons of connecting parts, for the State Railways in Denmark. For conditions apply, by letter, to Comptoir des Staatsbahnanlagen, Haventlowgade 10, Copenhagen.

## OUR INQUIRY COLUMN.

TO CORRESPONDENTS.

Correspondents will please take note that all communications will in future be answered in this column and not through the medium of the post. All questions and replies should be accompanied by the name and address of the writer.

## REPLIES.

N. S. S.—We quite agree with you. It is a most extraordinary circumstance.

GEORGE.—We have heard very little of the company of late. We are of opinion the prospects are far from encouraging.

A. B.—We do not think you could do better than sell out immediately.

IGNORANCE.—You might buy 50 or so.

INQUIRER.—We have heard of nothing of the kind.

THE LAGUNAS SYNDICATE (LIMITED).—An extraordinary general meeting of the Lagunas Syndicate (Limited) was held on Tuesday, at the offices, 3, Gracechurch-street, Colonel North presiding, when the resolutions passed at the meeting last month, converting the £100 and £50 shares into shares of £5 each, and approving of substituted Articles of Association were confirmed.—Colonel J. T. North said he wished to tell the meeting one or two things. The syndicate was in this position. It had sold a portion of its property to the new company for £900,000, and reckoning the call on the shares, that made a total of £1,012,000. There were in existence £100,000 of Six per Cent. Debentures, which it was intended to pay off, and to take £50,000 for working capital. That reduced the £1,012,000 by £150,000, and £125,000 more was to be deducted for the cost of putting up the new nitrate works, the erection of which was to be put in hand without delay. The original idea was to have put up two fresh machines, but it had been decided only to erect one at present, and let the second one pay for the third. The financial position was, therefore, this, that the syndicate had to divide among its proprietors £337,000 in cash, and 300,000 shares, while they would have the new nitrate works paid for in addition. His advice to holders of the shares in the syndicate was not to sell, but to watch the course of events. With regard to the new company's shares, they ought to command a good premium in the market, and would do so. The company was already working and earning a dividend, and before the end of the year there would be a distribution on the shares which would surprise proprietors.—Mr. Welbore Ellis asked whether the split shares could now be dealt in on the Stock Exchange.—The Chairman said that now the resolutions had been confirmed the shares of the company were of £5 denomination, and could be delivered for the next account.—A vote of thanks to the Chairman for presiding concluded the meeting.

The s.s. *Amity* sailed from Santander on the 7th inst. with a cargo of the San Salvador Spanish Iron Company's ore from Middlesbrough.



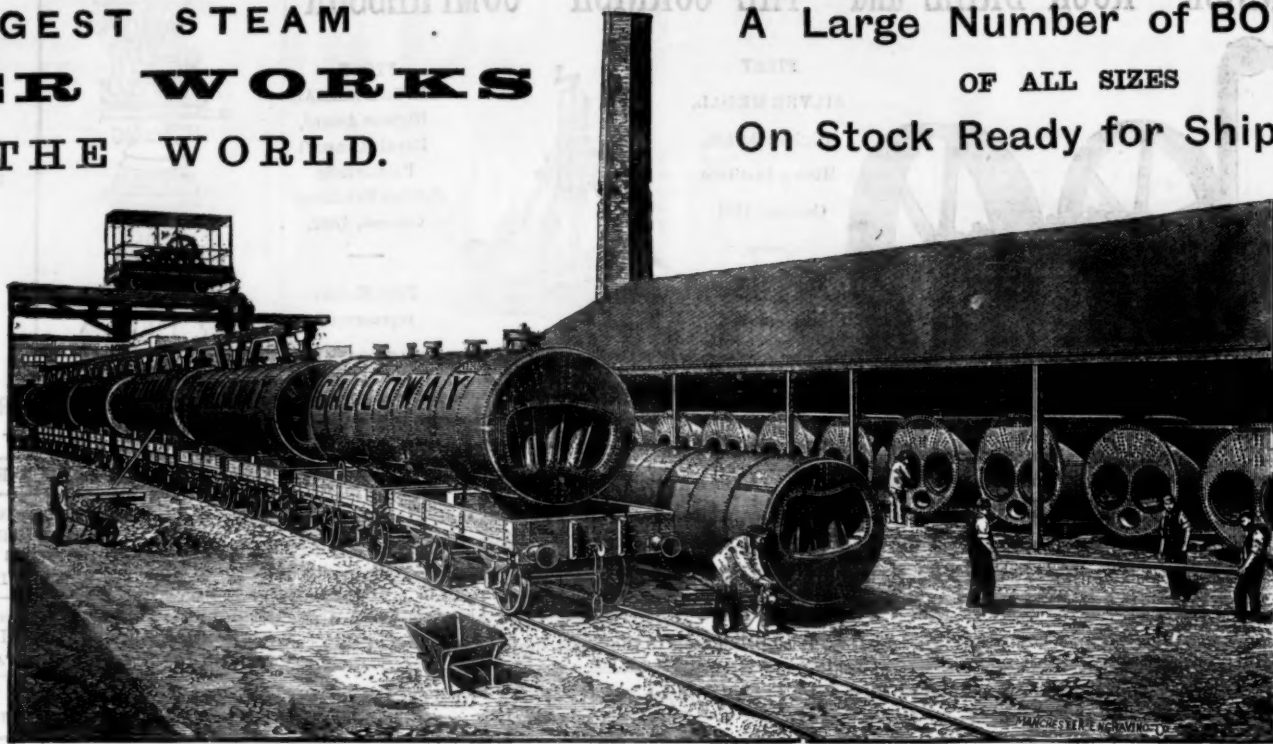
# GALLOWAYS, LIMITED, MANCHESTER.

LARGEST STEAM  
**BOILER WORKS**  
IN THE WORLD.

A Large Number of **BOILERS**  
OF ALL SIZES  
On Stock Ready for Shipment.

GRAND PRIX  
PARIS, 1878 & 1889

GOLD MEDALS  
AT ALL RECENT  
EXHIBITIONS.



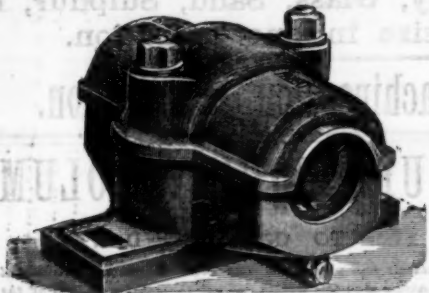
## MECHANICAL ENGINEERING: MACHINERY, MINING and RAILWAY PLANT, &c.

Illustrated Descriptions of New and Standard Mechanical Appliances, Accessories and Processes, adapted to Mining, Metallurgical, Railway, Engineering and other Industrial Purposes.

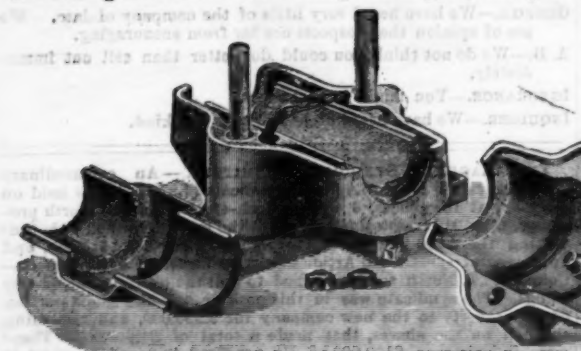
### A NEW "NON-DRIP" SHAFT BEARING.

Messrs. Hudswell, Clarke, and Co. have just introduced to the engineering world a new swivelling shaft bearing, known as "Etchell's Patent," for which are claimed a number of advantages over all the rest in the market.

To begin with, they require no oil cups, a perfect lubrication being obtained without these, one supply of oil obviating all further trouble for at least six months. Another great advantage is that no drip-cups are wanted to catch any of the waste oil, a simple internal arrangement being provided, which automatically removes from the revolving shaft any lubricant having a tendency to run along the outside of the bearing. Oil drippings are by this



means prevented—a matter of great importance to the textile manufacturer where delicate fabrics are being made.



Among the other advantages claimed for these bearings are:—Simplicity and fewness of parts; great strength and rigidity of make; self-swivelling and perfectly automatic action; abundant lubrication; protection from dust; large bearing surfaces; economy of management and maintenance; and ease of construction. Cheapness of make is carefully kept in view.

The firm also make the bearing with vertical adjustment. Patterns are also being prepared for hangers, brackets, slings, wall-boxes, &c., to suit this bearing.

Messrs. RUSSELL AND CO.'S CATALOGUE.—We have just received from Messrs. Russell and Co., the well-known electrical engineers, of 11, Queen Victoria-street, a complete catalogue of the elaborate and diverse apparatus under manufacture by them. The delay, for which an apology is inserted in the preface, will readily be excused in view of the finish which has been attained in the compilation. Electricians of all kinds, who doubtless will not fail to become possessed of a copy of the catalogue, will find that there are few branches of their industry inadequately represented therein.

## GEOLOGY AND MINERALOGY OF SHASTA COUNTY.

By HAROLD W. FAIRBANKS, F.G.S.A.  
From the Californian State Mineralogist.

### XIII.

(Continued from page 748.)

A HEAVY iron gossan outcrops in great projecting masses just above the workings of the Lost Confidence Mine, on Slick Rock Creek, and extends up the mountain, forming its crest fully 1000 feet above. This important mineralised belt extends about 10 miles north-easterly, across Spring and Boulder Creeks to Squaw Creek. A number of valuable silver mines are located on it. The Lost Confidence Mining Company owns about a mile of this deposit, beginning at Slick Rock Creek. One of the most interesting and valuable properties owned by this company is a body of pure hematite ore, covering about 40 acres. No development has yet been made, but every advantage exists for a great industry here. The iron is apparently inexhaustible, very pure, and with an inclined tramway built to the Sacramento River could be cheaply placed on the cars. The iron is separated from the silver vein by a dyke of porphyry 300 feet wide. There are two ledges or deposits carrying silver, separated by a stratum of decomposed quartz porphyry 1 to 3 feet wide, and dipping to the north-west. The footwall or silver vein is 10 to 30 feet thick. It consists of copper sulphurets, which assay 20 to 30 per cent. copper and 10 to 30 ounces silver per ton. The hanging wall vein is formed of almost pure iron sulphurets, 80 to 150 feet thick. It is worked for both gold and silver, containing them in the proportion of 10 silver to 1 gold. A large amount of native copper is saved every month by allowing the water which runs from the mine to pass through a flume several hundred feet long filled with scrap iron.

### The Backbone Mining District

is located in the same body of porphyry as the mines at Iron Mountain. It outcrops for 2½ miles along Squaw Creek. The Squaw Creek Mines are located in about the centre of the porphyry, but are of a very different character from those just described, carrying gold instead of silver. The deposits belong in the category of fissure veins, while the mineralisation of the silver belt, the northern continuation of which is seen on Squaw Creek, about a mile below the mines, is not that of a defined fissure, though a certain amount of crushing must have preceded the mineralisation, but is, instead, a kind of impregnation along an irregular line. In Shasta County the peculiar mineralisation giving rise to the prominent iron gossan on the surface is confined to the large bodies of porphyry. These ore deposits are almost free from quartz, and are characteristically silver bearing, in contrast to gold-bearing quartz ledges.

Between the mouth of Squaw Creek and the porphyry are many dykes of dark amygdaloidal porphyry and porphyrites. There are also strata of quartzite and other metamorphic rocks. A green rock, massive or schistose, outcrops along the river, below Kennet. It resembles the green rock in the Old Diggings and Middle Creek districts.

South of Squaw Creek, on a high ridge, are a number of valuable silver prospects, accompanied by a heavy gossan. Another gossan outcrop occurs three-fourths of a mile up the creek from

### The Uncle Sam Mine.

The slates appear a mile west, forming the summit of the divide. The contact with the porphyry follows a line about north 20° east. The contact is indicated by the sudden termination of the timber which grows on the porphyry. The slates are much metamorphosed near the porphyry, and have a very irregular strike, seeming to abut against it. The strike is north 50° west to east and west, dip generally to the south. Small dykes of quartz porphyry and diorite porphyrite occur in the slates. This body of slate extends north-easterly toward the Sacramento River, but is said to be followed farther north along the divide by another body of porphyry.

The Squaw Creek Mines are in a very acid quartz porphyry, often termed quartzite. The rock is greatly decomposed, but the presence of idiomorphic quartz and pale green talcose aggregate indicates an intrusive rock. The veins have a general east and west direction. Two veins are worked in the Uncle Sam Mine. A long crosscut tunnel shows the decomposed quartz porphyry with traces of hornblende crystals. In this rock are traces of a green rock, and one broad mass of a beautiful diorite porphyrite with feldspar crystals an inch long. The veins dip north conformably with a schistose structure developed in the porphyry. The large vein dips about 49°, the small one 65°. The ore consists of copper and iron sulphurets and free gold. At the time of my visit the greatest depth worked in the Uncle Sam Mine was 525 feet. The veins are 150 to 200 feet apart; average width 6 to 7 feet. The other mines in the vicinity have much the same character as the Uncle Sam.

Fig. 4 is a cross section sketch from

### Squaw Creek Mine

to the coal beds in eastern Shasta County. The highest peaks about the head of Squaw Creek rise 4000 feet. The old Squaw Creek trail to Kennet goes over the high ridge north of the creek. The porphyry is seen along this ridge for about two miles, when it terminates at a considerable body of limestone, which is, together with some slates, enclosed by the porphyry. This body of porphyry does not go much farther north, nor do the dark eruptives seen along the new grade extend over the ridge. Instead, the rock is almost wholly metamorphic below the limestone. One small patch of limestone is reported on the hill south of Squaw Creek. Another occurs between the trail and the new grade, one on the trail, and the largest between the Backbone Creeks, while north of Backbone Creek there is another small outcrop. The limestone crossed by the trail is rich in fossils, chiefly corals, as is also the large area on the north. The fossils occur along the southern side of the outcrop. The slates on the west strike north 20° east, becoming east and west, and finally east of the limestone north 30° to 45° east; dip nearly vertical. Green quartz porphyry occurs along the summit above the limestone. The limestone seems to merely cap the hills in places, the greater part of it lying on the ridges. In places the dip is steep, and it comes down to nearly Backbone Creek. The fossils are similar in all the separate areas.

The rocks up Backbone Creek are massive and green to feldspathic for a mile, when slates appear. They are greatly faulted, metamorphosed, and crushed, often having a shining black appearance. They are sometimes nearly level for several thousand feet. A little farther and there are dykes and broad masses of quartz porphyry, sometimes almost flinty. Farther up the creek, north-west of the limestone, there is not much intrusive rock. Boulders of silicious conglomerates are very abundant in the creek.

### The Fossils in the Limestone

are exclusively corals, and in places the branching stems form almost the complete mass and weather out very finely on the surface. In fact, the great mass of the limestone seems to be made of corals, which are nearly obliterated. This is the first discovery of paleozoic fossils in Shasta County west of the Sacramento, and is very interesting as proving the unity of the so-called coast ranges and the Sierras.

An excellent quality of lime is burned on Backbone Creek. A basalt flow terminates a short distance south of the old Sacramento River bridge. It extends northward, though more or less broken, to the head of the river, connecting with the lava fields of Siskiyou County. Where first met it forms a low table land along the west side of the river, rising about 100 feet or more. It is about 40 feet thick. Underneath are washed gravels, once the bed of the Sacramento River, and down which the lava flowed. The basalt being harder than the bedrock, the river cuts its bed by its side, frequently crossing it and reducing it to disconnected patches on the sides of the valley. A little north of Delta the lava rises 200 feet above the river, and is nearly 100 feet thick.

(To be continued.)

Messrs. FLEMING, BIRKBY, AND GOODALL (LIMITED).—This widely-known firm of belt manufacturers have recently issued a new and improved catalogue of their belts, which include all kinds of belting in ordinary use, special prominence being given to leather belting, which continues to hold "successfully" the field "against all its competitors." With a view of making a useful compilation still more useful, a number of hints as to the mercantile laws have been added, and will be found of considerable service. The catalogue should be in the hands of all engineers.



## A NEW METHOD OF SMELTING IRON PYRITES, &c.

ISSUE OF A PAMPHLET BY MESSRS. FRASER AND CHALMERS.

A PAMPHLET on the above subject has been very recently published by Messrs. Fraser and Chalmers, of world-wide fame as makers of mining machinery, which we take the liberty to reproduce in our columns.

### Definition of Terms.

Smelting is the art of rendering ores fluid by mixture with proper fluxes and by application of heat, thereby producing new combinations of the contained elements, which separate in the furnace according to their respective specific gravities, and may be drawn off separately. When the mixed mass of ore and flux is reduced into the fluid state, the heavy metals—gold, silver, copper, iron, lead, nickel, &c.—find the best possible opportunity to separate from the lighter earthy matter that accompanies them, and by reason of their weight and chemical combinations they collect in the bottom of the furnace.

The smelting process is, therefore, the best method of treating ores when it is possible to apply it.

Smelting operations have been carried on for ages, in various parts of the world, by using carbonaceous fuels, such as wood, coal, coke, &c., to generate the necessary heat. But it has long been the dream of metallurgists to devise a method by which ores containing a preponderance of the mineral sulphides could be smelted by means of the heat stored up in their own combustible elements.

Such a method we now possess in modern pyritic smelting, which is the art of smelting ores by utilising the fuel qualities of their combustible elements, thereby dispensing to a great extent with carbonaceous material.

Many obstacles were encountered by the pioneers in this field, but within the past few years the defects of the earlier efforts of inventors have been removed. A successful method of using the fuel qualities of pyritic ores has been devised, and pyritic smelting now occupies a recognised position among methods of ore reduction.

The advantages to be gained by adopting pyritic smelting where the conditions are favourable to it are evident, for, in addition to the high percentage of extraction which is secured in all methods of smelting as compared with processes of leaching, amalgamation, &c., a great economy is effected in dispensing with costly fuels, such as coke and charcoal.

The popular idea of a fuel, embodied in such familiar materials as wood, &c., is a substance that will burn in the air (usually with a flame) and give off heat. In such fuels the element which supplies the principal amount of heat is carbon. In arid and mountainous countries—distant from commercial centres—where a great many of our most valuable ores are found, such fuels are scarce and expensive. Even in the case of concentrated carbonaceous fuels (coke or charcoal), which are the most in demand for smelting purposes, and which, owing to their high percentage of carbon, stand the longest transportation, the prices are frequently excessive.

But there are other elements which can be made to burn in air and produce light and heat; for instance, iron, sulphur, zinc, arsenic, &c., may each and all be burned if the proper conditions for their combustion are provided. Metallic iron burns very slowly in moist air, and slower still in dry, and this burning of iron is called rusting. Now, the same amount of heat is always set free when the same weight of iron is oxidised, whether this takes place slowly, by rusting in the air, or quickly by combustion in oxygen; provided, of course, the same oxide be formed in both cases. The reason why the heat developed by iron when rusting does not become apparent to the senses is, that the great length of time consumed in the operation allows it to escape unnoticed. Years elapse while a pound of iron is being slowly changed into rust, even under the most favourable conditions. But alter the method of this rusting, and make it a rapid rusting—in other words, arrange to burn the pound of iron in a few minutes instead of the same number of years—and there is a radical change. The iron will burn with an intense heat, and under certain conditions will develop a high temperature, comparing favourably with other fuel for metallurgical purposes.

Sulphur also burns in the air, and gives off light and heat, as can be observed on the old-fashioned lucifer matches.

Pyritic smelting, embodying the latest expedients for overcoming difficulties previously encountered, has already been introduced into several mining regions upon a commercial scale.

### Historical Sketch of Pyritic Smelting Processes.

The advisability of employing the fuel properties of ores themselves for smelting rather than incurring the expense and trouble of obtaining coke or charcoal are self-evident, but many difficulties were encountered by those first essaying to use metallic sulphides as fuel in the blast furnace. This was only to be expected, however, just as when anthracite was first introduced for a similar purpose, it gave our metallurgists much trouble before they discovered the proper way of applying it.

Since John Hollway experimented with sulphide ores in a converter in 1878, this method of ore reduction has been greatly developed and altered in many essential details. As now practised, it is no longer the work of any one man, but the combined effort of a number of minds. Hollway's idea was to smelt sulphide ores in a modified Bessemer converter, adding just enough silicious material to slag off the protoxide of iron produced, and he deserves great credit for the thoroughly scientific manner in which he carried out his experiments. The necessary smelting temperature was maintained by injecting air into a molten bath of sulphides contained in the converter-shaped furnace, both the bath of molten sulphides and this manner of introducing the blast being essential features of the Hollway system.

Some years later, Austin, having observed that when heated pyritic ores were subjected to a current of warm air they readily melted, conceived the idea of applying the hot blast to a charge of sulphide ore, using an ordinary cupola furnace for the purpose, the air being previously heated in a hot-blast stove. The idea was distinct from Hollway's in two essential features; firstly, Austin could only carry out his method by previously heating the air in a stove, while in Hollway's process it was immaterial whether hot or cold air was used; and, secondly, Austin discarded the molten bath entirely, whereas Hollway used it as a vital element in his process.

Now, with the accumulated experience gained in the practical working of both these processes, a third method of applying the principles of pyritic smelting entirely distinct from either of the foregoing has been devised, in which not only is the undesirable feature of forcing a current of air through a column of molten sulphides and slag avoided, but the costly and cumbersome hot-blast stove is no longer necessary. In this new system of handling pyritic ores the most inferior classes of fuel may be turned to account, when smelting ores which permit of fluxing, but do not contain a sufficiency of sulphides for carrying on the process without some extraneous source of heat. The mechanical details of the furnaces and apparatus have also been perfected. Appliances are also now available by which the heat escaping in the waste gases from the tunnel head, and in the slag flowing from the furnace, may be utilised if desired.

Under the old Hollway and Austin systems of smelting, the establishments were necessarily expensive. Furnaces of large capacity were required to insure regular operation, and powerful blowing engines and costly hot-blast stoves were part of these plants; but with the new methods these features are not essential. No attempt is made to operate the furnaces without some aid, albeit very slight, from carbonaceous fuel, but the heat of this fuel is applied where it is most needed, and is not allowed to go to waste, to a great extent, as was the case in methods heretofore in vogue. Furthermore, under the new plan, much smaller furnaces are per-

missible, because the temperature of the smelting zone is now completely under control, and fuel of the most ordinary description is made to replace expensive varieties.

### Theory of Pyritic Smelting.

Metallic iron, if exposed in a very finely divided state to a current of air, oxidises so rapidly that the heat evolved in the operation causes the mass to glow, and we see the iron take fire and burn. This phenomenon is also occasionally observed in the case of certain sulphide ores which have been known to take fire when the earth covering them was removed, thereby exposing the mineral to action of the air. The spontaneous combustion of coal may also sometimes be explained by attributing the development of the heat necessary to set the mass on fire to the rapid oxidation of minute particles of mineral sulphides intimately mixed with it. We see, therefore, that under certain conditions both metallic iron and sulphide of iron will take fire and burn.

Now, the mineral pyrite, commonly called iron pyrites, is a combination of the two elements, iron and sulphur. In an apparatus arranged expressly for the purpose, these two elements may be dissociated and each combined with oxygen—that is to say, burned, just as coke is burned; and a sufficient degree of heat thereby generated to carry out certain metallurgical operations. "To effect the combustion of pyrite (sulphides) air is necessary as with other fuel; but something more is needed here, because the combustion of sulphides is, as will be shown, a more complicated operation than that of charcoal or coke. For in order that a body may take fire in air a certain temperature must be reached, termed the temperature of ignition; and to reach this with sulphides requires a special supply of heat." Whether this auxiliary heat is applied by raising the temperature of the blast outside the furnace, or by making use of the reserve heat stored up in a bath of molten matte, or in some other manner, it must be supplied from some source, otherwise it is not possible for the air to unite with the dissociated elements, iron and sulphur, and produce a fluid slag with silica. In the Hollway process this essential heat was obtained from the fused material in the bottom of the converter, and stored up in the air by passing it through this molten bath of sulphides; and in the old Austin method a hot blast stove accomplished the same purpose. If the air is forced into the furnace below the temperature of ignition, then unless the smelting process is carried on with unusual rapidity, so that the charge in fusing carries down into the smelting zone a surplus of heat from the upper parts of the furnace, the cold air in raising itself to the required temperature absorbs heat from that portion of the charge first met with, and chills it, so that in a short time the whole region in front of the tuyeres becomes cold, and the smelting operation ceases.

In utilising sulphides as fuel, an entirely different state of affairs is found to exist in the furnace from that where carbon is burnt. In the latter case a reducing atmosphere must necessarily be present, while in the former there is an oxidising one. This is evident when we consider the resulting products of combustion in the two cases. The metallic bases of the sulphides burn to those oxides which are respectively the strongest bases they are capable of forming with oxygen, and these are always solids, while the sulphur is driven off mostly as sulphurous acid gas. But when carbonaceous fuel is burnt, as in lead or copper smelting, carbonic oxide and carbonic acid result in approximately equal proportions, both being gases, and the former strongly reducing. In the case of the iron sulphides, the resultant product is largely iron protoxide, and, therefore, the heat evolved is expended to a great extent directly on the slag, where it is most needed, and the other products of combustion have but little action on the superincumbent charge, whereas in burning carbon a large amount of the heat produced is absorbed in expanding gaseous products which are of a reducing nature. It makes a very great difference in regard to the burning of sulphides, whether there is an oxidising or a reducing atmosphere, because in the latter case they simply fuse and run out, practically unchanged.

A few short calorimetric calculations will render the above differences more evident, explaining why the carbon of a furnace charge can in many cases be largely replaced by sulphides, and showing that in the latter case the heat produced is more directly applied to the desired ends than in the former. We will assume, for the purpose of this discussion, that the maximum temperature attained in a furnace exists immediately in front of the tuyeres. By maximum temperature is understood the highest theoretical degree of heat, which can be produced in any furnace by heating the blast up to the proper or given degree, introducing only the theoretical amount of air necessary for combustion, and by the fuel and charge in descending the shaft assuming the temperature of the smelting zone before combustion takes place. To give an idea of the important function played by intercurrent heat, it was ascertained at the Clarence Works in England, 25 years ago, that of the high temperature in the hearth of an 80 foot furnace, 70 per cent. present at any particular time owed its origin to its absorption by the materials during their immersion in the heated gases. The theoretical maximum temperature to be expected from any fuel when used in a blast furnace may be obtained by aid of the following formula:—

$$P_m = \frac{ag + 0.2375 tq}{ag - pc}$$

In which

$P_m$  = maximum temperature attainable before the tuyeres.

$a$  = calorific power of each element.

$g$  = weight in pounds of each element.

$t$  = temperature to which blast is heated.

$q$  = weight in pounds of air necessary for combustion,

$p$  = weight of each product of combustion.

$c$  = specific heat of each product of combustion.

$u$  = specific heat of the fuel.

In applying this formula to the case of pyritic smelting, with reference to the products of combustion, it must be borne in mind that the principle upon which this system of smelting is based, that wherever sulphide of iron is burned in the presence of a smelting temperature and of highly heated silica, ferrous silicate is always produced, forming the basis of a fusible slag. If a surplus of sulphide is present, only as much protoxide is formed as will saturate the silica, the remaining sulphide running down as matte. With this explanation, we may proceed to consider the action of pyrite in a blast furnace in which auxiliary heat is supplied from some external source, as already explained. As FeS, (pyrite) descends the shaft, one atom of the sulphur is expelled, when a dark-red heat is reached (about 700°C), and the sulphide reaches the smelting zone in the form of FeS (iron monosulphide). It is, therefore, with this latter compound that we have to deal in theoretical calculations. In the following table the calorific powers of iron and sulphur, &c., as determined by Favre and Silbermann, are given:—

Fe burnt to FeO gives 1178 thermal units,  
S " " SO<sub>2</sub> " 2220 " "  
C " " CO " 2473 " "  
which, being multiplied into the number of parts of each element used and the products added, gives the theoretical calorific power (Σ ag) of iron monosulphide,

	g	a	ag
Fe	0.6364	1178	750
S	0.3636	2220	807
Air	2.3527		
Σ g = 3.3527			Σ ag = 1557

But 1 gram of iron burning to FeS gives off 634 thermal units, and, therefore, 0.6364 grams will give 403; and since the same amount of heat is necessary to dissociate the FeS, as is created in uniting these elements; the 403 thermal units must be deducted from the 1557 in order to get the true calorific power of FeS, which is, therefore 1154.

NOTE.—The above formula, when worked out, will give the maximum theoretical temperature attainable in the case of any given fuel, and can be used as a basis of comparison for different fuels.

In order to obtain the theoretical temperature reached by the combustion of a fuel, we must first ascertain the amount of heat taken up by the products of combustion. This is arrived at in the following calculation, by multiplying the specific heats of the resulting products by their respective weights, the total (Σ pc) being the sum of the thermal units consumed in this way.

The following table gives the specific heats of the elements and compounds under consideration:—

	Specific heat of FeS = 0.1357	Specific heat of SO <sub>2</sub> = 0.1533	
" " FeO = 0.1400	" " N = 0.2440		
" " air = 0.2375	" " slag = 0.3300		
FeO...	0.8183...	0.1400...	pc 0.1146... 0.1819...
SO <sub>2</sub> ...	0.7272...	0.1553...	0.1129... 0.3636...
N ...	1.8072...	0.2440...	0.4410...

Σ pc = 3.3527 Σ pc = 0.6685 0.5455 1.8072 2.3527  
Inserting these values in the formula and taking t at 400 (°C) we get:

$$P_m = \frac{1154 + 0.2375 \times 400 (°C) \times 2.3527}{0.6685 - 0.1357} = 2585°C$$

which represents the theoretical maximum temperature attainable by the combustion of pyrite in the blast furnace after heating the air to 400° C and assuming that the temperature existing in the smelting zone of the furnace does not exceed 1500° C. There is evidently abundance of calorific power in the pyrite for the purpose contemplated.

In order to institute a true comparison of the respective merits of pyrites and coke as metallurgical fuels, the number of thermal units available for other purposes in each case after a temperature of 1500° C is reached should be shown, or, in other words, it is desirable to know the surplus energy, which each fuel has at its disposal for working purposes, after the temperature existing in the smelting zone has been reached. For a fuel in burning is expected to perform certain work, such as fusing the earthy portions of the ore to slag, &c., and not merely to expend its energy in sending the products of combustion up the chimney. In the case of iron monosulphide, assuming that Σ ag = 1154 is the calorific power of the compound, then 1154 - (0.1146 + 0.1129) × 1500° = 813 thermal units are available for work, which is equivalent to 70 per cent. of the total calorific force. But it is evident that the heat resultant from the combustion of FeS is largely expended in raising the temperature of the iron protoxide produced—that is, it is expended directly upon the slag and necessarily retained in the furnace so that we can eliminate the factor, 0.1146 from the equation, and we get 1154 - (0.1129 × 1500) = 985 thermal units, or 85 per cent. of the total calorific force available, which may be expended directly upon the charge.

In the case of the combustion of carbon to carbonic acid, however, heat is expended in expanding and driving off the volatile products generated, and is, therefore, lost. By a similar calculation it will be found that when carbon is burnt to CO<sub>2</sub>, the total number of thermal units above 1500° and available for additional work is 3621 equal to 44.8 per cent., but when carbon is burnt only to CO the figures become 2473 - [(2.33 × 0.245) + (4.41 × 0.2438)] × 1500 = 4, showing that in a furnace where the carbon is only burned to carbon monoxide, no fusion of the charge would take place where a temperature above 1500° C is required. In either case the results do not compare with those produced by burning iron monosulphide as regards application of the generated heat directly upon the work in hand.

As a basis for justly estimating the results to be expected from the combustion of the two classes of fuel, the actual working results obtained at a well-known copper works, using carbon fuel, may be compared with those given above for pyritic fuel. At the Mansfeld copper furnaces in Prussia, the gases escaping from the tunnel head were found by analysis to be 45.4 per cent. CO<sub>2</sub>, and 54.6 per cent. CO. This may be assumed to be the average composition of such gases produced in copper blast furnace practice. If, therefore, the available thermal units above 1500° C are, in the case of CO<sub>2</sub> and CO relatively, 3621 and 4, then the carbonaceous fuel applied in the charge of a copper furnace will figure out 3621 × 46-100 = 1666 thermal units, equivalent to 20.61 per cent. of its total calorific power, as against 85 per cent. in the case of FeS, showing that after a temperature of 1500° C is reached in a furnace there are over four times as many thermal units available in the case of pyrite as when coke is used for fuel. At the Clarence Works, already referred to, it was found that 44.82 per cent. of the coke used was expended without any useful results.

In the foregoing equations only sufficient air was introduced to meet theoretical requirements. That this is all that finds its way into the furnace, when in actual operation, is shown by the fact that much of the sulphur escapes from the tunnel head in an uncombined state, and burns when it reaches the outer air.

(To be continued.)

BRITISH GUIANA GOLD INDUSTRY.—The following is the return of gold entered at the office of the Department of Mines for the week ending 9th June, 1894, and the amounts of royalty paid thereon:—

	Amounts, Ozs. dwts. grs.	Royalty, £ s. d.
Barima .....	704 1 21	633 66
Barama .....	107 6 0	96 57
Cuyuni .....	753 6 19	678 01
Puruni .....	86 12 20	77 98
Groete Creek .....	8 2 5	7 29
Mazaruni .....	95 3 13	85 66
Conawarook .....	631 1 5	567 94
Potaro .....	492 5 3	443 01
Total .....	2877 19 14	2590 12

For the week ending June 16th:—

	Amounts, Ozs. dwts. grs.	Royalty, £ s. d.
Barima .....	594 13 19	535 21
Barama .....	314 1 12	282 67
Cuyuni .....	932 1 1	838 84
Groete Creek .....	1 13 17	1 52
Puruni .....	16 15 22	15 11
Mazaruni .....	234 17 23	211 41
Conawarook .....	494 16 22	445 35
Essequibo .....	305 17 22	275 82
Potaro .....	852 1 17	766 86
Demerara .....	5 11 3	5 00
Total .....	3752 11 14	3377 29

THE Melbourne Argus writes as follows with reference to the rich find in the Welcome Mine near Daylesford (Victoria). It finds a second edition of Fisher's Cloncurry leader. "They got 200 ounces when they had only gone a couple of feet on the underlie when they struck another pocket of 252 ounces of stone, which gave 216 ounces of gold. Four days after a third pocket of 40 lbs. weight of stone returned 320 ounces. The next day 12 lbs. gave 130 ounces, and on Thursday 463 ounces of quartz carried the magnificent yield of 400 ounces of gold. When I visited the mine the winze was down 12 feet on the underlie, and was about 6 feet in length. Here the reef material shows about 2 feet 6 inches in width, with a number of flat veins coming in from the west. The total amount of gold won since February 9 is 1218 ounces, valued at £4872 from about 14 cwt. of stone. The drive at the 45 feet level and a paddock at the bottom of the shaft are filled with crushing dirt valued at about an ounce to the ton. It is the intention of the proprietors to sink a main shaft and erect a small battery. The country has been pegged out for miles.



## MEETINGS OF MINING COMPANIES.

## DOLCOATH MINE.

## A heavy loss.—Generous action of Mr. Basset.

THE shareholders in the celebrated Dolcoath Mine held a 12-weeks' meeting on Tuesday at the account-house, under the presidency of Mr. M. H. WILLIAMS.

The accounts showed—Labour costs, £12,212 3s. 1d.; tribute, £1301 19s. 10d.; merchants' bills, £5850 2s. 11d.; Camborne parish rates, £300; Stannary dues, £26 17s. 4d.; banker's charges, £118 19s. 10d.; total, £19,810 3s. On the other side, 450 tons 14 cwt. 18 lbs. of tin had been sold for £19,205 4s. 9d., less dues, £1066 19s. 1d.—£18,138 5s. 8d.; by extra carriage of tin, £69 5s. 2d.; monies sold, £3 0s. 8d.; discounts, £45 17s. 10d.; tribute debts, £25; total, £18,281 9s. 4d. There was thus a loss on the 12 weeks of £1528 13s. 8d., and a balance now in hand of £2197 10s. 11d.

The CHAIRMAN said: I need not say to you how very much the committee regret the state of affairs to-day. It is, I think, about the first time I have attended a meeting of Dolcoath at which a loss has been shown. The fact is owing to circumstances with which you are all, no doubt, acquainted. Soon after the last meeting we had a misfortune; there was a run in the shaft, which has been the means of preventing our raising tin from the bottom of the mine. Well, we must look at it in a miner-like way. Our mine is not done. (Hear, hear.) We have not lost it altogether; it is only a question of time before we recover ourselves and get the water out; then we shall have our tin to fall back upon. It was a misfortune that we could not foresee. People talk of red letter days, but if ever there was a black letter day it was surely this. When the committee met on Friday and saw the statement of accounts we knew we were very heavily on the wrong side of the book, and some members of the committee waited on Mr. Goddard and laid the whole of the facts of the case before him. I am very pleased to say he received us very kindly. He said he had to consult other parties, but would do the best he could for us. We saw he was disposed to look at the matter favourably, and came away much pleased, Mr. Goddard promising that he would give us an answer in time for our meeting this morning. We had told him the importance of it; pointed out the great loss that had occurred, but which we hoped was only temporary. I will now read the letter which has been received from him:—"Dear Captain Josiah Thomas: I have pleasure in informing you that in consequence of the disadvantages you are suffering from as the result of the recent run in Dolcoath, Mr. Basset will remit one half the dues now due. I think that it should be made known that your position would have been much better if it had not been for the disloyalty and misconduct of some of your men. Yours faithfully, H. B. Goddard. P.S.—I, of course, allude to the tampering with the lifts which prevented your forking the water as soon as you otherwise would." (Applause.) I hope you will all feel with me that we are much indebted to Mr. Basset and those around him for the way in which we have been met. (Hear, hear.) I think he has met us very fairly, and I hope you will be satisfied. (Hear, hear.) As to our position, nothing that I can say can improve it. The price of tin is down, and our best tin ground is under water. When we get the water out, we shall still have our tin to fall back upon, and I hope by the time the water is out we shall see the price of tin up again. I move that the accounts be adopted, and I am only sorry there is no recommendation from the committee for a dividend. The Rev. W. W. BUTLIN seconded, and it was carried.

Captain JOSIAH THOMAS read the report of the agents as follows:—

On the 19th April, two days after the last meeting of the adventurers, a fall of ground at and above the 125 fathom level choked the engine shaft and stopped the working of the pumping engine, so that the water began immediately to accumulate in the deepest workings, and continued to rise until it reached to within 3½ fathoms of the 388 fathom level. The fall of ground was in connection with the old copper workings, where nothing has been done for the past 80 years, and which we had no means of examining, except in passing through the engine shaft, where there were no signs of weakness visible. The choke was cleared, the shaft firmly secured with heavy timbers from the 107 to the 132 fathom levels, and the pumping engine, after being idle for 9½ weeks, was again set to work on the 24th June. By building a dam in the 375 fathom level west of Old Pump, to keep back the western water, conveying the upper water to Harriett's engine, and fixing pumps worked by compressed air to raise water from the deep workings, which was conveyed to Harriett's engine through the 314 fathom level—the water at the engine shaft was prevented from rising as fast as it would otherwise have done. We shall continue the working of the air pumps in conjunction with the pumping engine, so as to drain the mine to the deepest point as rapidly as possible. The workings of the mine having been so disarranged, and scarcely anything having been done at the principal points of operation for the past 12 weeks, the various ends, &c., are of about the same value as reported at the last account. Notwithstanding the fact that our best tin ground has been under water nearly the whole of the past 12 weeks, we have succeeded in selling about 450 tons of tin, a large portion of which has been raised from the eastern part of the mine, and drawn to surface through the eastern shaft.

Captain JOSIAH THOMAS, supplementing his report, said: The past quarter, as you may well believe, has been a very trying one to all connected with the mine. At the last account in April everything seemed to be in a prosperous condition in connection with the mine except the low price of tin. And we were all very much cheered by the prospect at the deepest level, where we were opening a large quantity of highly productive ground. Almost immediately after the account a large, heavy piece of ground fell into the engine shaft at and above the 125 fathom level, which completely choked the shaft and stopped the working of the pumping engine, so that water began at once to accumulate in the bottom of the mine. I do not think anybody is to blame for the accident that happened. The shafts in the early days of the mine were sunk on the line of the lodes, and about 80 years ago, in 1815 (which date is on the main beam of our pumping engine) a new perpendicular shaft was sunk from surface, which met with the lode at the 125 fathom level, and it was there, where the shaft met with the lode, that this fall of ground has taken place. We had no means of examining that working except the shaft itself, where the sump men went up every day, but nothing dangerous was to be seen, nor do I think by the strictest examination anything could have been seen. At the 132 fathom level, where the workings were open on the lode and shaft, we some years ago put in some very heavy timbers, and those are still standing. In order to clear away this choke we had to begin first at the 107, where the ground was solid and secure; but the shaft was so very small that we were obliged to cut ground to make room for the timbers, so, as you may well imagine, the process was a very slow and tedious one. We had to go on bit by bit, cutting out the solid rock with chisels, to make room for the heavy timbers. We had to put in timbers hanging, them set by set from one to another until we met with solid ground both overhead and at the side of the shaft, and propped the various sets of timber we have had put in above. It was a matter of great relief to the agents and men when the shaft was cleared and the pumping engine set to work. And now, said Captain Thomas, I have to make some remarks about a matter which is not at all pleasant. When we saw that the engine was likely to be idle for some considerable time we fixed two small pumps underground to be worked by compressed air, for the purpose of pumping water from the deeper workings at the 313, and conveying it to the western engine at Harriett's shaft. The pumps worked very well some time, but suddenly the air was by some means cut off and the pumps would no longer work. After searching diligently some time we found a piece of shovel-head some feet in length had been put in one of the two air pipes, which effectually stopped the air and prevented the pumps working. Some malicious person must have come there in the night, took off the screw and flanges of the pumps, inserted the shovel head, screwed up the pipe, and restored it to its former position to make it more difficult to discover where the obstruction was. We offered a reward of £5, but could get no information whatever. After that the air pumps were working very well and sending back a

considerable quantity of water to Harriett's engine. We kept the pumping engine going very well at seven strokes a minute, but we found the bottom pole at the 400 suddenly failed and would not pump any water. We had to break that lift and fix two drawing lifts instead of the pole, and, in doing so, found that a lot of old jackets and other things had been put by somebody in the joint of that lift in order to interfere with the clock and prevent the water being raised. I cannot imagine who could have acted so maliciously, but some unprincipled men must have done it, and I can only think they must have been paid for it by some one—(hear, hear)—who, I suppose, got some benefit from it. I cannot think any man in the mine would do it from mischief, because they knew that many of their comrades were idle and would continue to be idle, at surface and underground, whilst the water was in the deep workings. In the last three or four days it has worked all right, and I hope we shall have no further interference of that kind. (Hear, hear.) I am glad to be able to inform you that, notwithstanding the fact that water has been covering the best tin ground for nearly the whole quarter, we have succeeded in selling 450 tons of tin. (Hear, hear.) I believe some people imagine nearly all the tin ground is at the bottom of the mine, but our returns prove that such is not so. We have a large quantity in the upper workings, and the greater portion this time has come from the eastern shaft. Putting down that shaft was the best piece of work we have ever done since my connection with the mine. It not only ventilated the deeper workings, but laid out a large quantity of ground which could not otherwise have been laid open for many long years to come. I quite agree with the Chairman and yourself in noticing the liberality, I may call it, of Mr. Basset, in giving up one-half of the dues. It is true he has received a large sum from the mine as the lord, but so have the shareholders, and when the lords deserve the thanks of the shareholders they ought to be freely given. (Hear, hear.) You will remember, perhaps, that about three years ago, when the representatives of Mr. Basset offered to reduce the dues from 1-15th (on which we took our lease) to 1-18th, or to receive one-quarter of the profits instead of 1-18th dues, the committee recommended, and you endorsed that recommendation, that it would be better to pay 1-18th dues than one-quarter profits. This is how the figures work out:—We have made a profit during the last three years, notwithstanding the comparatively low price of tin, of upwards of £90,000. We paid the lords in dues, including to-day's, £21,628. One-fourth profits would have made the dues £28,222, so that by paying 1-18th dues, instead of one-quarter profits, the adventurers have benefited by £5593. We are working now very regularly at the engine, and the shaft is in a more secure state than it was before. The bottom of the mine is as rich as ever. You may depend on this—we shall go on as rapidly as possible forking the water, and getting down to the lower workings again. I believe the vast majority, nearly all, the men in the mine are as much interested in the matter as we can be ourselves, and will do the best in their power. (Hear, hear.)

Mr. JAMES WICKETT moved that the best thanks of the meeting be tendered to Mr. Basset for the prompt way in which he had responded to the application made for the reduction of dues. Last quarter Mr. Basset received £1465 as dues, and might reasonably have expected a similar amount this time, so his accepting £533 showed he took an interest in the property, and was willing to bear his share with the adventurers. (Hear, hear.)

Mr. HEARD seconded with pleasure, and thought at present they were very much indebted to Mr. Basset for his sympathy with them in their difficulties. He felt sure that what he had done would be for Mr. Basset's advantage as well as that of the adventurers in future.

The CHAIRMAN endorsed these remarks, and spoke of the earnest way in which Mr. Goddard had taken up the question.

The motion was carried.

Mr. WICKETT asked: If things go on right how long will it be before we shall see the bottom of the mine? People want to know.

Captain THOMAS: That is a difficult question to answer. We are forking 2 feet in 24 hours, but now have a pool of water 250 fathoms in length from the eastern shaft to some distance below old sump. When we get to the 400 we shall go faster, and when below the 412 can fork it in a few days. I really don't like to give any opinion. We shall do a good deal in a month, but I am not sure we shall get to the bottom then.

Mr. J. MAYNE: Do you not think that as the pitwork has been tampered with it would be advisable to offer a good reward?

Mr. VIVIAN: Better offer £100.

The CHAIRMAN: If we are going to do anything we had better offer £50 or so to show that we are in earnest.

Captain JOSIAH THOMAS: There was some talk about that in committee, and it was thought advisable to offer a reward of £50, though I do not apprehend that would bring anything, because if a man were wicked enough to do that he would not have any witnesses.

Mr. HEARD thought no stone should be left unturned to find out the men who committed these devilish acts. All the labour of the best men in the world was set at naught by the devils incarnate who did such things. He thought the time had come when all reasonable men should speak out with regard to these acts, which were occurring not only here, but in France, in America, and in all parts of the world. He moved that the committee be empowered to offer a reward of £50 or such other sums as they might think proper.

Mr. MAYNE seconded.

The CHAIRMAN remarked that if the offer of a reward did not lead to the discovery of the men who had done this, it would probably prevent a repetition of the offence.

Mr. BAILEY: I think you have not to deal with an Anarchist, but with the agent of a dealer in shares. It might be useful to look round and see to whose interest it would be to put down the price of shares.

Mr. WICKETT: I think Mr. Bailey is entirely wrong. (Laughter.)

The CHAIRMAN: I think, gentlemen, we had better leave it where it is. Do not let us go into share dealing.

The motion was agreed to.

Mr. WICKETT asked whether any consideration had been given to the sinking of a shaft towards the south, and spending £40,000 or £60,000 on that work and in putting down proper machinery. Once the work was done, the mine could be worked cheaper than they were working it at present. If they did not consider the question now they would have to do it some day, and he thought the sooner they looked to it the better it would be.

The CHAIRMAN said the matter had been discussed in committee, and they had gone so far as to ask Captain Josiah Thomas to make out a plan showing what the nature of the shaft would be and what the state of the mine when it was completed. They felt, however, that at present they had so many difficulties to contend with, and that the price of tin was so low that they had not got the face to come to the shareholders that day to ask them to do anything of the kind. The shareholders might depend that the committee had it before them and were aware of the importance of it.

Captain JOSIAH THOMAS produced the plan alluded to by Mr. Williams, and remarked that a perpendicular shaft was not necessary to the working of the mine. They were now in a better position than they were before; the shaft was thoroughly renewed and made secure. Everyone knew that in a perpendicular shaft they could pump the water cheaper, draw the stuff cheaper, and also draw a larger quantity. It would be a great advantage in that respect, but, with the present price of tin, he supposed scarcely any man would think of entering on this work, unless they could have very large assistance from the lord or somebody outside.

The following are some of the May returns from the Rand, which were not notified by cable:—United Langlaagte, 2224 tons for 752 ounces; Meyer and Leeb, 1700 tons for 505 ounces (no tailings treated); Treasury, 647 ounces from mill and 347 ounces from tailings; New Gipsy, 206 ounces from tailings; New Black Reef, 244 ounces from mill and 279 ounces from tailings; and Knight's Tribute Syndicate, 2505 ounces from mill and 477 ounces from tailings.

## THE BARRETT GOLD MINING COMPANY.

## The improved plant.—What cyanide can do.

The annual general meeting of the Barrett Gold Mining Company (Limited) was held on Tuesday, at Winchester House, the chair being occupied by Mr. J. S. PRINCE.

The SECRETARY (Mr. H. Hodges) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, it has been my privilege frequently to address you upon the position and the affairs generally of our company, but on no previous occasion have I been able to do so with such pleasure as I experience to-day, and I think, when you hear what I have to say upon the operations of the past year, you will agree with me that we have every reason to congratulate ourselves upon having at last surmounted some of the difficulties with which we have for many years contended in endeavouring to save the gold contained in our ore. I shall have occasion presently to refer to the new cyanide plant which has been erected, and to the result of the year's work with this process, observing, however, now only that until the adoption of this system it seemed impossible to treat the ore with any prospect of a profit, over and above the cost of working. I will now briefly refer to some of the principal items in the balance sheet, and make some comments on the same. On the debit side appears the authorised capital, £120,000, or 240,000 shares of 10s. each; of these only 207,496 shares have been issued, and the balance of 32,504 remain an asset of the company. The item "creditors" includes loans against deposits, sums payable for cyanide plant, chemicals, &c., and running drafts against gold shipments. Most of the items on the credit side speak for themselves, and I will only refer to that of "preliminary expenses," which includes all registration and transfer dues, which we decided to write off periodically, and which will be entirely extinguished by the end of the current year. The total sum carried to debit of profit and loss amounts to £3388 4s. 8d., which might have been much reduced if we had not debited revenue account with such charges as dam building, tram laying, tree planting, and development work, instead of placing any or all of these charges to capital account, as we might very fairly have done, seeing that they were permanent improvements; we prefer, however, charging all these items to revenue, and getting rid of them once for all, a course which, I have no doubt, will meet with your approval. And now, gentlemen, I will preface my remarks relative to work done at the mine during the past year by asking you to carry your minds back two years, the date of the reconstruction of the company. At that time our hopes seemed to lie in the possible discovery of some rich reefs or deposits similar to the old Homeward Bound, which had given such good results in the early days, and also in the development of the banket formation, which had been proved to traverse Berlyn. The first year's workings, though not financially successful, proved many things, amongst others that various reefs or deposits existed on the property capable of being advantageously worked, if only some means could be discovered of saving a fair proportion of the excessively fine float gold contained in the ore, and of which but little could be saved from the battery plates. Up to that period no new rich reefs had been found, and the banket formation had not yet proved sufficiently encouraging to warrant any work being done, or at any rate not with the then existing appliances. At that time several scientific processes for gold extraction were being introduced to the public, and when we had the pleasure of meeting you a year ago I informed you that, after a rather prolonged and severe testing of several methods, we had convinced ourselves of the efficiency of the MacArthur-Forrest process in the treatment of the low grade ores and tailings. At that time a plant, believed to be capable of treating 1500 tons of tailings monthly, was under order, and although many difficulties and delays occurred, it was completed and at work during the last few months of 1893, and has continued to work with very fair results up to the present time. The first few months' working, which were of a somewhat experimental nature, developed the facts, firstly, that a mixture of crushed ore and tailings gave a better result than could be obtained from tailings alone; and, secondly, that owing to the muddy and slimy nature of both ore and tailings, filtration through the cyanide vats was far slower than was anticipated, and that, instead of being able to deal with 1500 tons monthly, not more than about half that quantity could be treated. This was, of course, disappointing for a time, but it was nevertheless a great satisfaction to us to find that, notwithstanding all the initial difficulties and the failure of the then existing plant to do all that was expected of it, the net result of our cyanide working up to February 28 last gave a profit of £1500. This, I am aware, is not a large amount, but it shows that we have, to some extent, overcome our difficulties and that we are on the road to success; it shows that we have turned the corner, and that only a little more patience is needed to ensure that result which we have so long and persistently struggled to attain. As I have referred to the cyanide process, it may be interesting to you to read you the monthly returns by this process from the commencement. In the month of October, when first we started, it was a complete failure, and we only got 10 ounces during that month; in November we got up to 122 ounces; in December to 149 ounces; in January to 226 ounces; in February to 296; in March to 344 ounces; in April we fell off to 267 ounces; in May to 129 ounces; and we have just had a cable stating that the June cyanide return reached 135 ounces, and that the returns from both the mill and the cyanide had very much improved. These two last months, May and June, you will observe are much smaller than the previous months; that is owing to the partial stoppage of the works in consequence of the erection of a new cyanide plant, which we are duplicating. Before, however, a full measure of success can be attained certain things remain to be done, and certain difficulties to be overcome. The first thing necessary is more plant—that is, more than was working up to February 28 last, and your directors, anticipating these requirements, authorised the duplication of the existing works, which, according to contract, were to be completed some time in June, and no doubt will be in full operation by the present time. One great difficulty, which from the first we have had to contend with, and which still remains to be overcome, is that caused by the slimes contained in our ores and tailings. This is a mechanical difficulty, which no doubt will be surmounted in due course, and various experiments to that end are constantly being made, both at our own works and Johannesburg. Our manager reports that he has at present, 10,000 tons of slimes, assaying from 10 to 12 dwts. per ton, and which he cannot touch with the present process; but he adds, "should any method be found of dealing with them, I shall be able to make handsome returns monthly. For the present these slimes represent a very valuable asset, but unfortunately not realisable." There is one method already known, that of calcination, by which these slimes could be effectually dealt with, but owing to the absence of any coal fields in the neighbourhood it is somewhat costly, and although experiments are already being made, it is doubtful whether at the present time we could work this calcination process at a profit. This leads me to speak of another very satisfactory feature in connection with our property, namely, the all important matter of railways. The Delagoa Bay—Pretoria line—has now been opened for traffic considerably beyond our borders, and the line actually passes through a corner of our estate, and there is a station within six miles of our mill. Instead of receiving supplies from England by the old costly route via Natal, we now receive them through Delagoa Bay, a much quicker and less expensive route. This line is being vigorously pushed on, and the continuation of it through the Middleburg district will enable development of the vast coal fields, and generally exercise a most beneficial influence on our part of the Transvaal, and will especially benefit us by supplying that much needed article cheap fuel, by which we may be enabled profitably to treat by calcination our large reserves of tailings and slimes, and in the meantime some other mode of getting over the existing difficulty may be discovered. And now, gentlemen, I will leave these matters and pass on to another promising feature, which may have considerable influence on our future prospects. I



have already incidentally referred in my remarks to the old Homeward Bound reef, from which a very large quantity of exceedingly rich ore was taken some years ago, but which for a long time has yielded ore of rather low grade. Just lately, however, our manager, while prospecting in the neighbourhood, has struck a large body of rock some 200 yards north-west of the old workings, from which (although he reports most cautiously) he expects great results. A shaft has been sunk on this new reef, which is known as the Homeward Bound Extension, and in driving north and south very good prospects have been met with. A fair quantity of ore has been brought to grass, and a trial crushing of 1000 tons will shortly take place, the result of which, I need scarcely say, will be very anxiously awaited. Our manager, in his cable, mentions that he is already crushing some of this ore, and also that the returns from the mill are improving very much. This is evidently the new ore he is treating at the mill. Having for the past year devoted all our attention and capital towards the completion of the cyanide plant, there has been neither time nor money for the purpose of further prospecting our very large property. Should circumstances, however, warrant our doing so, this important matter will not be lost sight of. And now, gentlemen, having to the best of my ability endeavoured to place before you a full and complete account of the year's operations, I will conclude by formally moving the adoption of the report and accounts, and shall be pleased to answer any questions shareholders may wish to ask. I, therefore, now move—"That the report and accounts, as printed, be adopted."

Mr. GEORGE REID seconded the resolution.

Mr. SCHMIDT enquired respecting an amount of £3074 8s. 10d., entered as "Cyanide Working Cost Account," whether it included any of the value of the cyanide plant in course of erection, or whether it referred entirely to the works already completed. He was sorry the directors had found it necessary to make another call—especially in view of the encouraging reports sent to the shareholders from time to time. The board ought certainly to take the position of the company into consideration, and endeavour to produce a balance-sheet with a more favourable result.

The CHAIRMAN, in reply to these and other questions, said that the item for cyanide plant was the cost of the wages and salaries connected with it. As to the call, he could assure the shareholders the board had only made it with the very greatest reluctance but at the time they took the step there was nothing left for them, but either to throw the thing up altogether, or to increase the plant so as to enable them to pay a dividend upon the shares. The cost of Kaffir labour was unfortunately high, on account of its scarcity; but the company could not do without it as a good deal of their stuff was carried by wagon. It was hardly necessary for him to say that the board did all in their power to effect a reduction of the expenses. He had been a director of the company for many years, and felt reluctant to leave it now that it seemed to be turning the corner.

Mr. SCHWARTZ: I take it the amount already expended on cyanide plant is not on account of the additional plant you have already referred to.

The CHAIRMAN: Oh yes; part of it.

Mr. SCHWARTZ: That will be satisfactory to the shareholders. Can you give us any approximate idea as to how much of this new capital will be spent in cyanide plant?

The CHAIRMAN: From £1500 to £2000.

The motion for the adoption of the report and accounts was then put and carried unanimously.

The retiring directors, Messrs. John S. Price and G. Reid, having been re-elected, and the auditors, Messrs. W. Westcott and Co., having been re-appointed, the meeting terminated with a hearty vote of thanks to the Chairman and the board.

## THE SOUTH AFRICAN TRUST AND FINANCE COMPANY.

The shareholders negative a proposal for a committee of investigation.—A poll to be taken.

An extraordinary general meeting of the shareholders of the South African Trust and Finance Company, convened by requisition, was held on Wednesday, at the Cannon-street Hotel, under the chairmanship of Mr. B. B. TRENCH.—(1) To consider the unsatisfactory position of the company, and the necessity or advisability of the unexpected heavy call; (2) to consider the advisability of writing off the uncalled capital to the extent of 10s. per share; (3) to decide upon such steps as will ensure the receipt by the company, before the shareholders are compelled to meet the present heavy call, of all outstanding moneys of overdrafts not sanctioned by the whole board of directors; and (4) to appoint a committee of investigation.

The SECRETARY (Mr. John S. Sheldrick) read the notice convening the meeting.

The CHAIRMAN said that before the proceedings were commenced he wished to ask the opinion of the meeting as to the desirability of shareholders who had not paid their calls being present. So far as he was concerned, he was entirely of opinion that they should be present, as he wished to hear the worst that could be said against the management of the company, and to have the privilege of answering it. Was it the wish of the meeting that those shareholders should be present? (Yes.) Then he desired, in the first place, to congratulate the shareholders upon the meeting having had diametrically the opposite result to what it was intended to have. His old colleague, Major Cotton, had done his best to prevent calls being paid, but, in spite of the agitation, they had been paid with greater promptitude than one could possibly have anticipated. Major Cotton had denied having originated the meeting, and that being so, he wished to know if the originator would stand up and support the allegations which had been made in the circular signed by Major Cotton.

The Chairman's invitation eliciting no reply from the body of the hall, he called upon Major Cotton to explain to the meeting the motives which had dictated his action.

Major Cotton remaining seated, Mr. PYE SMITH addressed the meeting, saying that though he was one of those who signed the requisition, he rose to move—"That a committee of investigation be appointed." Certain questions arose at the annual meeting as to the management of the company, and it was then suggested that a committee of investigation be appointed; but the shareholders ultimately decided to leave the question of reducing the number of the directors to the board. The shareholders were quite satisfied to receive a circular intimating that some of the directors had retired and that others remained. Since then certain allegations had been made with regard to the mismanagement of the company, and it was only right that they, as shareholders, should look into the matter themselves. It was his own opinion that Major Cotton was just as much responsible as the other directors of the company for the present state of things; for it was only a few weeks since he resigned. (Cheers.) What, however, he wanted to know at present was whether the allegations that had been made were true, and for that reason he moved the resolution, for in either issue that course could not be unadvisable.

Major COTTON, who was greeted with a mingled demonstration of applause and hisses, seconded the resolution. At the outset he might state that he was a large shareholder, and had induced his friends to subscribe a quarter of the capital of the company. It would be seen, therefore, that his present action was no personal matter—(Cries of "Oh!" and "Question!")—and that his sole object was the success of the company. The directors in their circular said he was equally responsible with them for the way in which the company had been conducted—(hear, hear)—but that was only true to a certain extent. When he was a director he had opposed the action of the Chairman, and those who supported him, and he had no doubt that was the chief cause of his being voted off the board. The board asked in their circular whether the shareholders desired to retain the services of the present board, or to

entrust to him (Major Cotton) the conduct of the company's affairs. He had never suggested that this should be done. His suggestion was that they should appoint a committee to ascertain the true financial position, secure more economical management in the future, prevent the uncalled capital being called up, and make those who were responsible for the overdrafts discharge their obligations. Having stated that when the company's previous bankers stopped its credit he placed £1000 to the company's account, without any security, charging only bank rate for it. The Major went on to say it might be asked why he did not mention the matters in dispute at the general meeting in April last, when the Chairman distinctly led the shareholders to believe that no call would be made. He did consider the advisability of bringing these matters forward; but, on consideration, he deemed it wiser to let the matter pass for the moment, being determined upon having these outstanding accounts paid without loss of time. The making of the call so shortly after the general meeting was a surprise to him and, after conferring with some of the large shareholders, it was decided to convene the present meeting. The company's financial position was precisely the same now as in April last—when the Chairman declared that there was no present necessity of making a call—except that the Bank of Africa had called in £10,000 of their loan, which was about the same amount as was due from their South African managers for overdrafts. Major Cotton next referred to the application of Mr. Campbell, the general manager, for an increase of salary, against which he protested, but which was voted by a majority of the board. As he (the speaker) threatened to bring the matter before the shareholders, Mr. Campbell refused the increase, but asked the Chairman to allow him to overdraw his account at 5 per cent. interest, which was agreed to, though the matter was never recorded on the minutes. On the Chairman proceeding to Johannesburg, Mr. Evans, their local manager, asked for similar permission, which the Chairman accorded. He and other directors were astonished to find that these overdrafts amounted to over £10,000, and the Chairman explained that he had given the general manager permission to overdraw, but did not limit the amount, and fully expected it would only be about £500 each. He (the speaker) protested against the whole business, and drew attention to the impropriety of it, and also to the fact that the company were only charging 5 per cent. on those overdrafts at a time when the company's bankers were charging them 10 per cent. This matter was put to Mr. Campbell, and the interest was raised to 10 per cent. The friction caused by the managers being requested to repay these overdrafts had been very great, and the company's interests had suffered in consequence. The Major proceeded to object to the large amount which the Chairman charged as expenses in connection with his visit to the Transvaal, and then referred to the action of the Chairman with regard to the forfeiture of shares. Notice of forfeiture of 2000 and 3000 shares in the company was given if the overdue call and 10 per cent. interest were not paid by a certain date. On that date certain shareholders paid up the call without interest, and, despite his entreaties to allow time, the shares were declared forfeited. Upon the appointment of a committee he would be happy to furnish full particulars of other matters that required investigation. Major Cotton concluded by reading a letter from Mr. Campbell, in which that official strongly recommended a thorough investigation, and added, "We can save the ship yet add bring her out, but never under the present system." (Applause and laughter.)

Mr. CONCANNON sought to explain the purport of the letter which Major Cotton had read by the fact that the general manager was under notice to leave. (Laughter.) He then proceeded to quote the remarks by Major Cotton at the last general meeting in moving the re-election of the Chairman—"I never saw any directors attend to the business of a company like these gentlemen." Since that meeting four large shareholders, at the instance of Major Cotton, had interviewed the directors; he was amongst that number, and was able to say that all the charges now referred to were dealt with to the satisfaction of three out of those four gentlemen.

Mr. H. WEAVER, another of the four shareholders referred to, said that they came to the following conclusions:—(1) That the personal honour and integrity of the board were beyond question; (2) that the management of the company had not been characterised by wisdom; and (3) that, in the interests of the shareholders, the directors should do what they could to put things straight, and tell them the result at the end of the year.

Mr. KAIM spoke in support of the motion. Mr. BARROW, M.P., thought there was no question but that great indiscretions had been committed by the board in allowing the overdrafts in South Africa, and alluding to the other allegations made, observed that it would be well that Major Cotton and the Chairman should come face to face, and that the meeting should now hear the Chairman's reply.

The CHAIRMAN apologised for detaining the meeting at such a late hour, but reminded the shareholders that he would have risen at an earlier hour had he not been forestalled. Proceeding, he said, that Major Cotton by his action had done the greatest injury to the company. (Cheers and "No!" "No!") They had not heard the injury. It had occasioned the resignation of their most valued director, Mr. Parker. That gentleman had written to the effect that he was willing to share with the other directors full responsibility for all that had occurred. He had stood by the company, notwithstanding ill health, but now felt compelled to tender his resignation. Mr. Raw had also written expressing his desire to retire if the shareholders did not care to give the directors fair time and full freedom to act as their judgment dictated. Referring to the question of overdrafts, the Chairman said he frankly admitted that he had done wrong in allowing the unlimited overdrafts. The statements which Major Cotton had made in his circular, however, were somewhat vague, for he said that his first knowledge of the overdrafts was not obtained until the accounts came over from South Africa. That might have been; but it was a fact that when he (the Chairman) was in Johannesburg he wrote to the board—and his letter was read in the presence of Major Cotton—on the subject of the overdrafts of both Mr. Campbell and Mr. Evans. Mr. Campbell's overdrafts did unquestionably originate with him, but those of Mr. Evans did not. The latter were allowed by Mr. Campbell in the ordinary course of business, with the view of carrying out an amalgamation of property in which they were jointly interested, and which turned out to be of benefit to the company. The directors were doing their best to realise the securities received by the company in respect of these overdrafts, and the Major, by his action, had been the only one to obstruct the proceedings. The Chairman maintained that no good could result from the proposed committee of investigation. The forfeited shares were 15 months to two years in arrear at the time, and the directors had done all in their power to collect the calls on those shares. They believed they adopted the right course, and the course which was fairest to the other shareholders. (Hear, hear, and cries of "Vote!" and "Time.")

Major COTTON rose again to speak, but the meeting manifesting a disinclination to hear him he resumed his seat.

The motion was then put, first, upon a show of hands; and again by a division to the right and left of the reporters' table, when the CHAIRMAN declared it lost on both occasions.

In answer to Mr. CONCANNON, the CHAIRMAN said that the proxies sent in on behalf of Major Cotton represented 3952 votes, while those for the board numbered over 11,900.

Mr. CONCANNON enquired whether Major Cotton intended to add insult to injury by demanding a poll.

Major COTTON replied in the affirmative, and the CHAIRMAN announced that it would be taken forthwith.

The proceedings, which had been marked throughout by strong feeling and had lasted two hours, then terminated.

The South African Mining Journal states that when the Spes Bona Mine was closed down, at the beginning of last month, not 1 ton of payable rock was opened up. Even pumping operations are to be suspended.

## THE SHEBA GOLD MINING COMPANY, LIMITED.

A unanimous meeting.—The composition of the directorate.

The 12th ordinary general meeting of the Sheba Gold Mining Company (Limited) was held at the Cannon-street Hotel, on Thursday last, the chair being occupied by Mr. W. G. SOPER.

The SECRETARY (Mr. J. E. Booth) read the notice convening the meeting.

The CHAIRMAN said—Gentlemen, it is a great pleasure to me to be able to congratulate the shareholders on the fact that, as at the previous meeting so at this, they are face to face with a person direct from their property. (Hear, hear.) At the last meeting it was Mr. Chambers—at this meeting it is our respected general manager, Mr. Hill. (Applause.) Mr. Hill, your name amongst the Sheba shareholders is always received with the respect it deserves, and we are very pleased to see you here in person, and to welcome you to England, to enjoy that well-earned holiday which you so greatly deserve, and I am sure that you must be equally pleased to meet the shareholders under such satisfactory circumstances. The mine is as promising as ever. It is more promising than ever. The property, as this map indicates, has been greatly extended. The works are in splendid order. A dividend of 7½ per cent. for six months has been earned and paid, with only 60 stamps at present at work upon that vast property. And you, sir, are the happy manager of this company's property. (Applause.) Some have said that you have a tendency to be a wee bit expensive. I have no doubt that you will be able to make some remarks upon that point before this meeting closes, and we, as the board representing the shareholders, wish at once to testify our appreciation of your zeal in the interest of this company, your skill in its management, and—not least—the honesty that hitherto has signalled and which, I believe, will continue to signalise the conduct of the general management of the Sheba Company. (Applause.) Gentlemen, I sometimes wish that it were possible for me to abolish time and annihilate distance. The board occasionally get impatient that they are unable to push the work forward with greater celerity than perhaps is even possible; but I am consoled, and the board is consoled by the fact that—as the poet says—"Who does the best his circumstance allows does well, acts nobly; angels could no more." And it is supported by this reflection that I address to you the few remarks respecting the electric transmission of power for working the 60 stamps at the mine. Mr. Chambers came home, as you are aware, and with him he brought the plans which were deposited in the Sheba office on December 18, 1893. The board promptly took these plans into serious consideration, and it has been with much care that they have endeavoured to find the best possible plan for the electric transmission of power in that difficult country, exposed as it is to so many thunderstorms. Well, the contract was finally settled on March 12th, 1894. Already deliveries have taken place for a portion of that work, and the cable with which we want to begin operations has in part been dispatched, and all will have left these shores, as we hope, by August 12th, 1894, or, perhaps, even earlier. Now, the manager will tell you what preparations he has made for receiving this plant, and he will give you some idea as to when, in all human probability, the 60 stamps will be at work on the Sheba Mine. Until those 60 stamps are erected I hope the shareholders will remember that whatever the Sheba Company has done is simply and solely the product of those 60 stamps. I have no doubt that we shall be able fully to maintain the returns which have been accomplished in the past, and, I trust, reach even greater ones than those for the past month. Well, gentlemen, early in February there was great jubilation at the strike in Annie's Fortune, and early in July there was heard the scorn and derision excited at a return of only 5 dwts. This is only another instance of the uncertainties of mining, and another instance of the fickleness of humanity. Now, what are the facts? Prospections were instituted on this Annie's Fortune which, it was thought, were likely to yield good results as we had a striking record. The complaint was made against the board that they did not immediately publish the cable information. Now, as a general principle, the board of the Sheba Company has held, and holds, and ever will put into practice, the belief that whatever important information is received from the mine, that information should be communicated as promptly as possible to the Sheba shareholders. (Applause.) But there are exceptions to every rule, and this was a rare exception, because at that time we had not secured the purchase of the Edwin Bray, and we wanted to secure it before this fact became patent to the world. You will see, therefore, that we acted strictly in the best interests of the Sheba shareholders in keeping our mouths closed. (Applause.) But although our mouths were closed the lynx eye of the Press was open, and they communicated as a rumour what we were anxious to retain as a fact, and if you ask me how the newspapers got their information, I can only say that if the *Pall Mall* could announce the resignation of Mr. Gladstone before it was known to the official members of the Cabinet, there was really nothing uncommon in the publication of a report of the strike in the Annie's Fortune, although they were unconscious of it as a fact. There are always reports hovering about. Who manufactures them the wildest imagination can hardly conceive, and I want now, as Chairman of this company, and speaking in the name of my brother directors, emphatically to warn the shareholders against these assertions which are accurate usually in inverse proportion to the positiveness with which they are made. I was, myself, told that our crushing for May was to be 8500 ounces. I said I knew nothing about it, and was met with an incredulous smile and the reply, "It is on the Stock Exchange"—that source of all accurate information. (Laughter.) When our poor unfortunate directors opened the cable at the office of the company within a quarter of an hour afterwards we found it was only 6746 ounces. I do beg those who have invested money in the Sheba to wait for the facts, which they will have from the board immediately they are in the hands of the directors. I should like to illustrate the value of these rumours by referring to the assertion that there was no strike in the Annie's Fortune. I am not given to strong language, but if I were I should simply characterise that statement by a monosyllabic word of three "letters," which your imagination will easily supply. What is the strike worth? I was told when I was a boy that beauty was only skin deep, and, however that may be true with respect to the beauty of some young ladies, I think it is absolutely untrue with regard to Annie's Fortune. I think Annie will prove a not unworthy lady-in-waiting to the Queen of Sheba, and her guardian tell us what riches are upon her face and also what riches are in her pockets. But, gentlemen, I am privileged to announce to you that this lady was, on the 3rd inst., married to a very promising and highly-valued gentleman, well known in Barbervton, Edwin Bray. (Laughter.) There was some dispute over the marriage settlement, but that dispute has been settled. To drop the metaphor, I may say that, as was announced in our circular of May 8, 1894, the consideration was in cash, £26,580, which has been paid, and 9684 shares which are about to be issued, and for which a quotation will be sought in due course. Of course there are any number of rumours about these 10,000 shares. They were said to have been placed upon the market, and had run down the prices of the shares before they had even been issued. I think you will have seen sufficient to indicate to you the opinion of the board that this Sheba reef, which is a distinct reef from our old Sheba reef, runs according to our judgment and belief, not only in the Annie's Fortune, but also into the Edwin Bray and into the Golden Quarry Deep Level. Gentlemen, what I have said to you is, more or less, ancient history, but what I am now about to say to you is of pressing and present interest. I heartily congratulate the Sheba shareholders that, whereas I have been obliged more than once to tell them that the ore appears to be drifting from east towards the west, that although such is the case, we are now happy to be able to inform you that in the ninth level the ore is again turning towards the east as well as the west, and when we had a



rather important cable, on March 9th, the board promptly wrote out to our general manager to peg out a good number of claims to the west of Annie's Fortune. But we are not able to teach Mr. Hill very much that he does not know, for it turned out that a few days before he received our letter he, himself, had pegged out some 33 claims. (Applause.) Now, of these 33 claims, four have been in dispute. The remaining 29 remain undisputed. With respect to the disputed claims the present decision of the Transvaal is adverse to the Sheba Company. Now, the Sheba Company is not an important company in the De Kaap district. It pays a large amount in annual licenses to the Government, and it distributes, roughly, some £10,000 a month in current working expenses, and I feel sure that justice will be done to this company in respect to these four claims. If these claims have been rightly surrendered to an alleged owner who had not paid his license, what becomes of the titles of many who hold their ground on the same tenure. I am told that there are some 40 companies in this state, and, therefore, the board have determined that the accuracy of this decision shall be tested to the very utmost of their power. (Hear, hear.) Gentlemen, I know you have come this afternoon to hear our respected manager, but in the many times when I have had the pleasure of speaking to the shareholders I have never spoken to them with fuller confidence as to the future of the property than I have to-day. (Applause.)

Mr. HILL, the company's manager at the property, said: Mr. Chairman and gentlemen, I am pleased at having the opportunity of being present at this meeting, and with becoming personally acquainted with so many of the shareholders. I would rather have met you in a week's time, as it would have given me a better chance of collecting my ideas. But I am sure you will excuse my rough and ready mode of stating the facts. I have no doubt you are all anxious to know what is being done towards the erection of the 60 stamp mill at the mine. In the first place I may say that we have obtained a valuable water-right on Fever Creek, extending for a distance of 3 miles, i.e., from the Nil Desperandum Mine to the Nil Desperandum battery, which embraces all the water from the small feeders to Fever Creek. This water-right is not the water-right which I saw was mentioned at your last meeting. It is a water-right which I obtained without cost, and will be used for supplying the mill with water for the plates, vanners, &c. In connection with this we are now constructing five dams on Fever and Snijjims Creeks, from where we shall pump the water a short distance to the mill. Our low level tunnel will give considerable water, which will gravitate to the mill. We have also made all preparations for erecting the Fraser and Chalmers 60-stamp portion of the Oriental mill on a piece of ground which has been granted us by the Government, and which is undoubtedly a fine mill site, situated about a quarter of a mile east of the No. 5 level. We have so laid the ground out that below it there will be ample room for an additional cyanide plant, smaller than the present one, to treat the tailings direct from this mill, by which we hope to reduce the working cost. We have also cut three canals, each about 200 yards in length, through which we have turned the waters of Fever and Snijjims Creeks, thus reclaiming the only suitable piece of ground on which to store tailings within a distance of several miles. We have thus taken up all the ground and water in the neighbourhood which it was thought would be useful to the company. The Oriental ground tram has been repaired from what was their mill to the Sheba Mine, a distance of 5½ miles. The bridges, too, have been strengthened sufficiently for light traffic. The line has also been extended for half a mile higher up the valley towards the mine. This was considered advisable to enable us to transport this 60-stamp mill direct by tram to the mill-site, and thus save the expense and loss of time of ox-wagon transport. When I left for England a full half of this mill had been dismantled and ready for transporting. For this purpose we have thoroughly repaired two of the locomotives and constructed several suitable trolleys. On June 1 the work of repairing the Oriental dam was recommenced, which we hope to complete before the rainy season sets in. There is now but very little surface work to be done between the Oriental battery site and the mine before the actual erection of this mill commences. Although we have done a great deal of work in connection with placing the mill at the mine, still there is much more to be done, and I doubt whether these extra stamps will be in full running order before May next. In connection with the transmission of the necessary power to the new battery site, we are raising one of the Oriental turbines above ordinary flood level, and also adding the turbine purchased from the Cerro de Pascoe. The route for the electric cable from the generating station to the mine has been surveyed, and I believe by this time that the work of digging the trench, 5 miles in length, in which the cable will be laid, has been begun. I am very glad, indeed, to learn that the board had decided to lay this cable underground, and thus reduce the chance of accidents from lightning to a minimum. I was very pleased also to hear, on arrival in London, that part of the electric plant had been shipped, and I have no doubt it will all be on the ground with all possible speed. I will now say a few words to you about the low level tunnel, which will adjoin the No. 7 level, and which is in about 900 feet, all of which has been driven during the present year, and which, when finished, will be about 3000 feet in length. We have still another 600 feet to drive before reaching the Edwin Bray block, at which point we shall cross out to the reef. We anticipate that the first 1500 feet will be finished by the time the mill is ready for the ore, all of which will be transported through this tunnel. I think you will all see the importance of this tunnel when I tell you that it will drain to a depth of 120 feet vertically below our present main adit, the whole of the property where gold has been found, and that at the Sheba Block we shall have 500 feet, at the Annie's Fortune 700 feet, and at the Nil Desperandum near 1000 feet of ground above us, which will be broken down to the tunnel level, and run out to the mills, thus enabling us to work more economically. Now, a few words re the strike on the Annie's Fortune. As you are all aware, there has been a great deal said and written about the strike being made upon ground not belonging to the Sheba Company. This is absolutely false. The strike was made on the Annie's Fortune block, which was acquired from the Oriental, and not far from the boundary of the Sheba and Annie's Fortune. As soon as I was thoroughly satisfied that we had got on to gold, I at once ascertained what open ground there was in the line of the strike, and at once pegged off 33 claims in the interest of the company, which ground I believe to be valuable. I was very glad to have the board's wishes as to this subject, which I had thus anticipated by a few days. As soon as it was found that I had pegged off the above claims rumours commenced to circulate that a movement was on foot to compel the company to buy up Wilhelm, but I gave them clearly to understand that we did not intend to buy, but would rather fight. I am glad to hear on my reaching England that the board had already sent off a cable to carry this matter to the end. We first struck gold about 30 to 50 feet north of the Edwin Bray side line. We then traced the out-crop for 100 feet in width, 30 feet out of the 100 showing gold in the pan. Nineteen samples were assayed, which averaged 29 dwts. per ton. Whether it is a separate reef, or a part of the Sheba reef, I cannot as yet definitely say, but I am inclined to believe that it is a part of the Sheba reef, the ground being identically the same as the surface of the Sheba Quarry. The reef has an underlie to the south of 52° the same as the Sheba. My opinion is that it goes down, and that it will dip into the Edwin Bray at about 50 feet from the surface—at the side line, and, further, that it will also be found in the Golden Quarry Deep Level. If so, we shall have from 500 feet to 700 feet of ground to work out above our low level tunnel. We are now cross-cutting north from the Edwin Bray towards the Annie's Fortune at a depth of 400 feet, and we are also cross-cutting from the back of the Annie's Fortune reef south at 200 feet deep. I was rather disappointed to see that the return from the Annie's Fortune for last month was so low. At the same time it did not surprise me; for when I came away they were just getting into a bed of weathered quartzite. This strengthens my opinion that it is part of the Sheba reef. It is a repetition of our experience with the Sheba quarry, and I shall expect to hear that they have recommenced the crushing in Annie's Fortune and on good ore. By the remarks of the

Chairman regarding the low levels of the Sheba Block, I see that he has been closely following my reports on the subject, and I am pleased to repeat that we have found good gold-bearing rocks on No. 9 level further east than any level below No. 4—or more correctly speaking, half was between Nos. 4 and 5 levels. In sinking the incline shaft, indications led us to conclude that the shoot was inclining towards the west—and we were, therefore, the more agreeably surprised to find that on No. 9 level there was a strong body of ore to the east of the incline. I have here a few samples of ore taken from the low levels a day or so prior to my leaving the mine. Some of the shareholders may ask how long I think the mine will last. Now, this is a somewhat difficult question to answer. If the gold had been evenly disseminated through the rock it would then be a very easy matter to measure up the ground and say. So far we have proved the shoot ore to extend from west to east a distance of 500 feet above the No. 5 level, and within that distance the gold has been found irregularly deposited. Nevertheless, our crushings have been maintained at about 1 ounce per ton. Good ore still exists above No. 5 level, and especially under the quarry, which is unfortunately for the present buried up, and from Nos. 6 to 9 levels we have a good block of ground standing, to all appearances as good as any we have broken in the upper levels. Good ore also continues in the bottom of the incline shaft, at 350 feet below No. 5 level. When driving east and west on No. 9 we had visible gold most of the distance for 45 feet from either end of the incline shaft. We are behind with our development work owing to our work on the surface, as already explained, but principally owing to the scarcity of native labour; but I have every confidence that we have good ground under No. 9 and to the west of our present working on that level. The past six months' work has also shown us that the ore body is extending east. Since our 60 stamp mill started we have crushed 132,000 tons, and produced 115,000 ounces of gold on the plates. Having broken such rich rock at a depth of from 240 to 320 feet below water level as I have in my hand, it makes me sanguine when speaking of the future of the mine. It will take years of hard and continuous development work to thoroughly prove such an immense property as the Sheba now is. We have every reason to believe there is payable ore in the Edwin Bray, the Golden Quarry Deep Level, Oriental, Nil Desperandum and Nil North, but owing to the terrible scarcity of native labour I have hitherto found it impossible to pay attention to these blocks. For this reason we have done practically no prospecting other than the Annie's Fortune. I understand that the Sheba Lode Exploration Syndicate has found gold-bearing rock about 150 yards east of the Agatha, and if it proves to be a permanent reef, it is almost certain to run into the Agatha. Of our various departments I have pleasure in saying that the electrical hoisting plant gives perfect satisfaction. The aerial tram has much improved during the past six months, and has kept the mill fully supplied with ore. I consider the improvement due to our having added such a large quantity of new materials, and, in addition to this, we have strengthened it by adding a greater part of the Oriental aerial tram which we have dismantled for the purpose of working it in our own line, and thus save purchasing new materials. Our cyanide works have run continuously since they were started, and I find by comparison that we are working as closely and cheaply as other first-class companies. We have lately made some experiments on concentrates by the cyanide process with very good results. So far we have treated 39,000 tons of tailings, which have produced, near 22,000 ounces of gold. Our concentrates have yielded near 10,000 ounces, making a total gold production since the mill started of 142,000 ounces from a tonnage of 132,000. Our foundry, machine shops, and millwrights' departments are fully equipped with first-class tools, and are in a position to turn out almost anything in case of need, thus making us, in a measure, independent. Of the mill I can say it shows little or no signs of wear. It does splendid work and requires but few repairs. I will not trespass on you much longer, but before closing I should like to say a few words, *re* a remark made by the Chairman—that I am, I think he said, a wee bit expensive. I admit that I have expended considerable money on the property; at the same time I consider that the property justified the expenditure. Whatever work I have done I think any fair critic will admit has been done well, and will prove to be the cheapest in the long run. On this point, I may say that I have brought home some photos, and anyone interested will see the style of buildings I have erected, which are certainly not extravagant, but are good and solid. It must be borne in mind that the Sheba is located in a difficult and expensive country to work in, and further, that our works are scattered over a circumference of 15 miles. I do not mind being fairly criticised, and consider the board has a right to do so in the interest of the shareholders, but I consider it hardly fair to compare the management of a property like the Sheba with that of a lot of dead one-horse properties, as was recently done by a friend of the company in South Africa. When I assumed charge at the Sheba there were three small huts and a smithy at the foot of the mine, and at the battery site an office and storeroom. We now have what approaches to a town at each place, as can be seen by the photographs which I will show, and not one unnecessary building exists. When I was appointed manager of the Sheba, five years ago, there was practically no machinery or buildings on the property, and during that time I have been working incessantly on construction work, with one end in view—*i.e.*, "The reduction of the cost of producing the gold." How I have succeeded will be seen when I tell you that the cost has been reduced from £6 12s. 8d. per ton to less than 30s. per ton, and I hope to still reduce the cost when our low level tunnel is finished and the mine opened up on the lines I have laid down. In considering the expenditure, it must not be forgotten that the Sheba is one of the hardest known gold mines, and that every foot of ground we drive through costs £4. The hardness of the rock and the extreme fineness of the gold also adds to the average working cost per ton. As we are compelled to use fine screens in the mill, and the stamps cannot crush much more than half the quantity crushed by mills at the Randt, therefore we have a comparatively small tonnage to divide our total working expenses by. But this is only another mode of saying that the life of the Sheba is continuous. Under the present management the property has increased from a piece of ground 800 feet by 1500 feet to a block of near 9000 feet by 1600 feet—from 20 to 177 claims. In conclusion, gentlemen, I beg to thank you for listening so attentively to me, and also for the confidence and support given me by the board and shareholders generally.

Mr. MURHEAD, who had been connected with the company from the commencement, had a strong conviction that it possessed a magnificent property, and one that, he was glad to say, was developing excellently well. He was especially pleased to notice that the ore was increasing in value on the eastern side. He had always held the opinion that the mine was a good one, though patchy. He hoped, however, that the ore would not go too far east, for they had no wish to purchase any more properties. (Hear, hear.) He might mention that when the company had 120 stamps running they would crush 100,000 tons a year, which in 20 years would mean 2,000,000 tons of ore, and he should be glad to know whether Mr. Hill thought there was that quantity in the mine. In conclusion, he congratulated the Chairman on the open and straightforward character of the speech he had made.

Mr. HILL, in answer to these questions, said it was difficult to form any exact estimate of the quantity of ore in the mine, more particularly as there was not so much development done as he could have wished to see. There was no doubt, however, that there were millions and millions of tons of ore in the mine. In the Edwin Bray alone he believed there were five million tons. Whether it was all payable ore, however, could not be said. No doubt, when the 120 stamps were going he should be able to decrease the cost of treating the ore—perhaps to 20s. a ton. (Applause.) The tailings now cost 6s. 4d. a ton. (Applause.)

There being no resolution to put to the meeting, the first part of the proceedings terminated.

An extraordinary general meeting was subsequently held, for the purpose of considering and, if thought fit, passing resolutions increasing the number of the directors.

The CHAIRMAN said that the names of Mr. Isaac Lewis and Mr. George Trenchard Cox had been proposed as directors. He also read a letter from Mr. J. Gould protesting against the proposal to elect additional directors.

Mr. BARNATO urged the opposite view, contending that as the property of the company was so materially increased it was highly desirable that additional directors should be appointed.

Dr. GIBBON proposed a resolution affirming the desirability of increasing the board, which was duly seconded.

Mr. GOSNELL moved an amendment substantially amounting to the previous question, which was also seconded.

Mr. SEAR urged the desirability of increasing the board, on the ground that there might occasionally arise some difficulty in obtaining a quorum, when the business of the company would suffer.

The CHAIRMAN, in answer to an enquiry as to the board's own views on the proposed addition to their number, said the directors were of opinion that the question was wholly one for the shareholders. (Hear, hear.)

The amendment and the resolutions were both put and lost.

Mr. SEAR formally demanded a poll on the question, the CHAIRMAN announcing that it would take place in a fortnight.

A hearty vote of thanks was then given to the Chairman, and the proceedings then terminated.

## MOODIE'S GOLD MINING COMPANY.

(From the South African Mining Journal.)

The 10th annual meeting of the shareholders in Moodie's Gold Mining Company was held on Thursday, June 7th, at Maritzburg, the chair being occupied by Mr. E. M. GARNER.

The directors reported as follows:—The directors submit the balance sheet and statement of profit and loss for the year ended 31st March, 1894, which (including balance of £682 7s. 8d. from last year) shows a profit of £1890 6s. 9d., and after writing off £350 14s. for depreciation on buildings, machinery, plant, &c., a balance of £1539 12s. 9d. is carried forward to next account. With this report the directors furnish the usual return of revenue under each head for each month of the year, and a return giving particulars of the claimholders on the property at 31st March. During the year 11,804 tons of ore were crushed by claimholders, yielding 8257 ounces 4 dwts. 13 grains of gold—an average of 14 dwts. per ton. Whilst the tonnage crushed is less than last year, the average yield of gold is considerably better, being an increase of 3 dwts. per ton. The Brighton Reef property, as will be seen from the accounts, now stands at £1690 9s. 2d., the sale of the battery allotted to in last year's report having been effected. This account will be still further reduced during the ensuing year, and the ground may likely be let out upon claim permits. During the year we have received the sum of £625 as dividends upon our holding in shares of the United Ivy Reef Gold Mining Company, and so soon as the electric motive power is available, and the extra stamping power of the company at work, their monthly output of gold should be largely increased. Moodie's Pioneer Gold Mining Company have ceased work pending negotiations now in hand for a reclamation of a portion of that company's property. The United Ivy Extension Company are prospecting and developing their property steadily and with satisfactory results. We have acquired as our interest in two reserve claims, 1500 shares in this company, as is shown in the share account. Tree planting has returned us £392 19s. 6d. over expenses during the year, and under this head the manager reports:—"The plantation is a good investment, and we can now supply timber to the mines as required. One of the best mining timbermen here says the timber is the best he ever used, and exceedingly tough."—Roads: The expenditure under this head has been larger than usual, owing to necessity of repairing the main roads several times through the damage done by the abnormal floods experienced during the year. The expenditure of £1147 7s. 1d. on buildings has been necessary in providing increased office accommodation and additions to the manager's house at the mine. The portion of the works undertaken by the company in connection with the electrical transmission of power is now, with the exception of the generating and distributing stations, finished, and these last are rapidly approaching completion. Portion of the contractors' plant and material is now on the ground, and its erection, under the direction of their engineer, is being proceeded with, and, in terms of the contract, the works have to be completed by the 15th August. At the close of the year a sum amounting to £26,839 11s. 6d. had been expended upon these works, which includes the amount of the contractor's tender for the erection of the up-keep for six months hereafter, deposited in London. Some further expenditure will be necessary before the works are fully completed, the ultimate cost of which your board anticipate will not exceed £30,000. There is little doubt but that when this installation has been successfully accomplished, a period of progress will follow. A regular and steady supply of power will enable many claimholders, who at present depend solely upon a very unreliable water supply, to work continuously throughout the year, and much ground, that has hitherto been utterly neglected for want of such power, will immediately be taken up in claims. On 24th January a circular to shareholders was issued, notifying that your board had decided to call up the balance of unpaid capital—*viz.*, 5s. per share. This call was made payable on 1st May, and it is satisfactory to note that the money is coming in freely.

In moving the adoption of the directors' report and accounts, the CHAIRMAN said that the only item of interest to the shareholders he required to address them upon was the electrical plant being erected by the company for the transmission of power from Queen's River to the mines. For two years the directors had devoted all their energies to securing the successful inauguration of a scheme which, it was confidently expected, would revolutionise the fortunes of the claimholders and the company. He must frankly state that the board had been led to expect that the work would have been completed long ere this, but in South Africa, and in fact, all over the world, work of the kind, and on such an extensive scale, was subjected to unavoidable delays. The board had done all in their power to hurry on operations without forcing the hands of the contractors to the prejudice of the work. The firm to whom the erection of the plant had been entrusted had been strongly recommended by the company's engineer, and they had every confidence in their opinion. The greater portion, if not the whole, of the plant for the installation was now in South Africa, if not on the property. The terms of the contract provided for the completion of the work on August 15th next, and if not ready by that date the contractors had to pay a heavy penalty for each day's delay. That fact he took to be a guarantee of the work being completed in the time specified. The electrical apparatus had cost a considerable amount of money—even more than had been anticipated; but, as a *quid pro quo*, he could assure shareholders that they need fear no disappointment or *contratempo*. As soon as the plant got to work, an impetus would be given to the property that would amply recoup the company for all expenses. Rates had already been arranged with several of the subsidiary companies for the supplying of horse-power, which rate would not only pay the interest on the cost of the plant, but the working expenses also. He must distinctly state that the board did not wish to make a profit from the subsidiary companies. The scheme had been initiated for the benefit of claimholders, for the claims on the property were so situated that it was impossible to make a profit with electrical power. During the last year, although a great quantity of quartz had been crushed, the value of the ore had exceeded that of the previous 12 months by 3 dwts. This was a splendid result, and once the electrical power was working, one and all would make substantial profits. There had been many applications for power, but he was afraid that until the installation had taken place they could not accurately ascertain what amount of power would be taken up. Everyone would understand that many people who had been debarred in the past from working would be enabled to take up their



properties and develop them, when there was every chance of making profits. The manager had informed them that already many properties that had been lying idle were being worked. Fear had been expressed that the terrific thunderstorms that prevailed in the Kaap district would fuse the dynamos and render the power futile. The attention of the contractors had been drawn to the fact, and they had communicated with their consulting engineer, a gentleman who was recognised as second to none in England. He replied that ample provision had been made for such a contingency, and that the best appliances in the electrical world were being used. If, however, danger was found to exist the batteries could be closed during the storm, and all risks obviated with a little delay. The claimholders had accepted the explanation as a satisfactory solution of a possible difficulty. The Ivy Company had paid handsome dividends on the shares held by Moodie's Company, and if the Ivy could show a profit so could the adjoining claims. In the past want of water had been the only stumbling block, but the installation of the electrical plant would place all companies on the same footing. It was unreasonable to think that the Ivy was the only rich company there. Considerable sums had been spent on roads, and, unfortunately, they had the most terrible district in South Africa to keep in proper travelling repair, and, this year, heavy rains had increased the requirements of the road parties. The trees planted four or five years ago were now bringing in a profit, and the manager reported that in the future the timber would be much used on the property. During the year the board had decided to call up the remaining capital, and it appeared that shareholders had not objected to this course. He would like to point out that the board practically controlled 80,000 acres of land with a capital of £100,000. On the Rand they thought nothing of spending that sum for the erection of a battery. The board had done their best with the available funds, and the money for the erection of the plant had been deposited in England. The call would give them £30,000, of which fully one-half had already been received. It would have been impossible to carry on a work of such magnitude without capital, and ruinous to borrow money at interest. All shares would be fully paid up, and the next dividend would be per cent, and not per share as heretofore. He trusted that next year a substantial dividend would be declared, and if the anticipations of the board regarding the success of the electrical plant were realised, this would be an assured fact. The board had spared no efforts to safeguard and promote the welfare of the shareholders, and he was confident their labours would result in permanent good. On the motion of Mr. FREEMAN the report was adopted unanimously.

Mr. FREEMAN proposed the re-election of the retiring directors—Messrs. Scott and Gordon and Mr. E. M. Green—which was carried. Messrs. Taunton and Loram were re-elected as auditors, and voted 20 guineas each for their services during the past year. The meeting then terminated.

## NEW SPES BONA GOLD MINING COMPANY.

### The condition of the property.

The ordinary general meeting of the New Spes Bona Gold Mining Company was held at Liverpool on Thursday, Mr. J. S. H. BANNER presiding.

The CHAIRMAN, in moving the adoption of the report and balance-sheet, expressed regret that they were not of a more favourable character. There was little to add to the information contained in the report, except to say that a telegram had been received showing that in four days after the clearing up out of 761 tons crushed there were 485 ounces of gold, and out of 1400 tons of cyanide treated there were 390 ounces of gold. Had they only had that clearing up going on during the time the mine was working, they should never have had the accounts in the position they were in. The money they had lost had gone in new machinery and in the outfit of the mine. It would be remembered that when they met in September, 1893, when the loan of £30,000 was raised, the shareholders did not come forward to assist the directors in finding the capital to carry on the mine. Some arrangements were then made whereby the loan was effected without the knowledge of the shareholders, and under these arrangements the control went to parties abroad, who were thoroughly able to do their best to work the mine to great advantage. The directors would have preferred that the capital raised should have been expended in sinking the shafts and winzes and opening up the lower levels, even if this would have entailed the shutting down of the mill until such period as would allow of the stopping from and supplying the mill from the third level of the western section and the second level of the Angela Mine, where all had led them to believe that good payable ore would be found. Mr. Bennett had estimated that he would derive large profits from milling the ore reserves at those upper levels, and so assured were the local board of the future prosperity of the mine, that to the expression of alarm of the directors that the working capital was being rapidly consumed, they replied that they felt confident of making the company an unqualified success if left alone to carry out their plans of working, and that so far from being alarmed at the rapid consumption of the working capital, they were acting with specific intention, were fully confident the resources at their command would be equal to the outlay, and would even leave a balance in hand. Probably the estimate that these reserves were payable was based upon the altered conditions of recovery—namely, the contemplated erection of cyanide works. They had certainly cause to regret that the more prudent course of pushing forward developments should not have found favour with their manager and directors abroad; but under the circumstances the directors had no choice but to recommend the shareholders to provide the necessary capital to open up the mine and place it in a position to supply the mill with payable ore. Until May last they were not informed that crushing was being done at a loss, and that the local board recommended the shutting down unless funds could be immediately supplied to meet accrued liability and prosecute developments. Under the circumstances the directors had no alternative but to instruct the local board to carry out their recommendation of shutting down the mill until satisfactory financial arrangements could be made. In conclusion, the Chairman said that £15,000 would be required for further development, and, as they had failed to induce the shareholders to take up debentures for the amount, they had not been able to formulate any other scheme for resurrecting the company.

Mr. HARRISON seconded the motion.

Mr. BENNETT moved that the meeting be adjourned for a month, to enable the shareholders to look into the report, and that a committee of shareholders be appointed to consult with the directors as to the best means of helping the mine out of its difficulties.

Mr. WEIL seconded the amendment, which was, however lost, and the report adopted.

Mr. SYMONS, of Johannesburg, one of the mortgagees, denied a rumour that they intended to foreclose and wreck the mine.

Eventually, on the motion of the CHAIRMAN, the meeting was adjourned for a fortnight, to consider the best means of dealing with the present position of the company, and the Chairman promised to meet the London shareholders next Tuesday, to talk over the matter, Liverpool shareholders being invited to communicate their views.

"AUSTRALIAN GOLD FIELDS."—We acknowledge the receipt of this publication, which is published by Mr. F. G. McCutcheon, 5, Lothbury, E.C. It is a monthly record of the principal Australian gold mines and mining companies. The idea has been to place before mining investors, maps of the leases on the several gold fields of the different colonies, together with tables of output, yield and dividends, and to give short, consecutive accounts of the actual work done in each of the mines. We think it will early be found to be a useful publication.

## KILLIFRETH.

### "A grand thing for the mine."—Dividend of 2s. per share.

A sixteen-weeks' meeting of the shareholders was held on the mine on Tuesday, Mr. T. F. TROUSON, perier, in the chair. The accounts showed:—Labour costs, £3039; merchants' bills, £1287; dues, £135; total, £4461. Credits—120 tons of tin ore sold, £4948; arsenic, £66; halvan, £21; extra carriage of tin, £14; discounts, £33; old materials, £13; total, £5094. A profit of £570 was shown on the 16 weeks' working. The balance carried forward was £247. The AGENTS (Messrs. R. A. James, O. Northey, P. Mitchell, and J. Nettle) reported:—

Richard's perpendicular shaft is being sunk below the 70 fathom level with as little delay as possible. This is a very important point of operation, being the only shaft through which the good lode in the bottom of this level, east and west of Evans, can be successfully worked at a greater depth. The lode cut through at this level during last quarter has been driven on west of Evans, for about 3 fathoms in a fine lode worth £1 per fathom, which is the present value of both ends. We have also commenced to rise in this level. The 50 fathom level has been driven to the western crossing, and for the last 10 fathoms has been worth from £8 to £10 per fathom. A rise immediately behind this end, of similar value, is intended to ventilate as well as open up tin ground, seen in level above for over 30 fathoms in length. The driving of this end west of crossing will be resumed as soon as possible, when we expect to have a good lode. The 40 fathom level during the past quarter has been producing occasional stones of tin, but has been influenced by a strong course of spar, which has never failed to produce tin around it. A winze sinking below the level, down 2 fathoms, is worth £10 per fathom. Since our last account we have driven through 15 fathoms of tin ground in the 30 fathom level, varying in value from £8 to £12 per fathom. Lode in present end producing saving work for tin and arsenic. A winze sinking in the bottom of this level is worth £12 per fathom. The 20 fathom level, which is about 45 fathoms behind the 30 end, is worth £8 per fathom.

The CHAIRMAN said the quantity of tin returned was about the same as during the last sixteen weeks, but the price of tin was unfortunately nearly £2 18s. 6d. per ton less than the previous quarter. In the total the credits were £480 less, and the debits £137 less, making a reduction of £347 in the profits compared with the previous sixteen weeks. Labour cost had been greater, and merchants' bills abnormally high, owing to the progressive nature of the work done. The bills in the ensuing quarter would, probably, not be so high, although they would cover a period of four months, instead of three, over which the present accounts ranged.

Captain JAMES said whereas last quarter they had stamped 6961 tons, this quarter 7460 tons had been stamped. They had tried to compensate for the low price of tin by stamping more stuff. A good deal of money had been spent on machinery. A new piston had been put in the engine, which was quite sufficient for the four 16-head axles. Hitherto they had found difficulty in getting sufficient stamped, but now they had plenty of power. They had got Richard's shaft fairly at work. He anticipated that the bills for the last three months would be as large as those for the ensuing four months. In his opinion the future of the mine depended largely on the sinking of the shaft to the 70, in the bottom of which was a very good lode. They proposed to sink the shaft 18 fathoms, and then drive a 40 or 45 crosscut due south to reach this lode. In his opinion the future of the mine depended on the sinking of the shaft to the 70, at the bottom of which was a very good lode. Driving had been done there three or four years ago, but it had never been worked, and it could only be worked through this shaft. They proposed to sink the shaft 18 fathoms, and then make a 40 or 45 crosscut due south to cut the lode. He ventured to say that if they had the same facilities with the old lode as they had with the present, they could make it pay even with tin at its present price. They would continue working at the perpendicular shaft as rapidly as possible. He believed it would be a grand thing for the mine when they had the old lode working in connection with the present middle lode. The biggest charge in the mine was pumping, but that was now spread over 8000 instead of 2000 tons, as formerly. The report and accounts were adopted on the proposition of Mr. W. LIDGAY, seconded by Mr. W. H. SARA.

A dividend of 2s. per share was declared, and £47 10s. 3d. was carried forward, on the proposition of Mr. NETTLE, seconded by Captain BRAY. The former remarked that, although the amount to be carried forward was small, there was a quantity of arsenic to be disposed of, and this would augment it considerably.

Mr. LIDGAY proposed, and Mr. J. H. HUSSEN seconded, the re-election of Messrs. J. Bray, J. Nettle, J. B. Sanders, and R. H. Lee as the committee.

This was carried unanimously.

Mr. N. B. BULLEN proposed a vote of thanks to the executive for the excellent work done. The production of so much tin, when the work only gave 36 lbs. to the ton of stuff, was almost marvellous.

The motion was seconded by Captain J. KNEEBONE, and carried.

## FORTHCOMING MEETINGS.

\* We shall be obliged if Secretaries or other Officials of Mining, Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings—whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned—in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Balance sheets, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent.

Name of Company.	Date.	Nature of Meeting.	Place.	Time.
Agency and Exploration Co. of Australasia .....	July 17	General	Winchester Ho.	12.30 p.m.
Sutherland Reef .....	July 17	General	Winchester Ho.	2.30 p.m.
Appantoo Gold Mining Co., Mysoor Reef Gold Mining Co., Elmore's French Patent Copper Company .....	July 17	General	Winchester Ho.	4.0 p.m.
West Indian Exploration Co. .....	July 19	General	Winchester Ho.	12 noon
Bechuana Land Company .....	July 19	General	Cannon-street	12 noon
Edwin Bray Gold Company .....	July 19	General	Cannon-street	2.30 p.m.
United African Syndicate .....	July 19	General	Cannon-street	2.30 p.m.
Southern Land Company .....	July 19	General	Cannon-street	3.30 p.m.

The Kootenay Hydraulic Mining Company to-day, says the *Victoria Daily Times* of the 24th May, completed a most important clearing-up. Their operations have been directed to ascertain precisely the value of their property on the north bank of the Pend d'Oreille River; to this end they collected all the water from the Seven Mile and Nine Mile creeks, and directed it into their main ditch with a head of 250 feet above the monitors at the level of the Pend d'Oreille River. They sent through their sluices 2200 yards of gravel, and the weight of the quicksilver amalgam shows a yield of \$525 in gold, equal to nearly 24 cents per cubic yard, some of the nuggets being of a good size, the largest being worth \$5-85. When it is remembered that 8 cents per yard is regarded as enormous, and that many of the great placers in California are worked at high profit even at 3 and 4 cents per yard, this result must be regarded as most encouraging. Notwithstanding the very high expenditure already incurred by the company in collecting the waters of six or seven mountain torrents by means of a ten mile ditch, it cannot but be recognised that this source of supply is entirely inadequate for the purpose, as it is merely the rush of the spring freshets, and attention is necessarily turned to the magnificent body of water in the Pend d'Oreille River, to ascertain whether it can be made available to supply the water to the monitors with a pressure equivalent to a head of 200 or 300 feet, as well as being the natural dumping ground.

## THE BAUXITES.

### A STUDY OF A NEW MINERALOGICAL FAMILY.

By FRANCIS LAUR, Engineer of Mines, Deputy of the Seine, Paris, France.

BAUXITE, at first considered as a mineralogical curiosity without importance, now attracts daily increased attention from mineralogists, geologists, and manufacturers. The metallurgy of aluminum, which has entered with the advent of electrolysis upon a new phase within the last few years, requires every day larger quantities of pure alumina, and this can only be obtained from bauxite, which is, of known substances, the richest in free alumina.

Bauxite has been mined since 1872 in France, where about 200,000 tons have been produced, and where, as a natural consequence, its deposits, qualities, and applications have become known. Within a few years past, discoveries of important deposits of bauxite have been made in the United States and Canada, and this almost entirely new subject has thus acquired an additional interest for the mining engineers and metallurgists of the American Continent. A brief summary of the available data concerning it appears likely, therefore, to be appropriate and valuable.

#### I.—Historical.

It was in 1821 that the famous chemist Berthier discovered at Baux (Bouches du Rhone) a hydrate of alumina (varying from 66 to 79 per cent. in its contents of the oxide) mixed with silica and ferric oxide, to which he gave the name bauxite, thus establishing a new and vaguely defined mineral species.

This new mineral subsequently attracted the attention of M. Le Chatelier, a mining engineer, who attempted to utilise it in the manufacture of sulphate of alumina, but without great success, the quantity of ferric oxide present rendering the sulphate too impure. His endeavour to employ the mineral in the preparation of refractory materials was thwarted by the almost unlimited shrinkage.

The method of St. Claire Deville for the manufacture of aluminum having been brought forward, the works of Salyndres (Gard) manufactured from the bauxite of Baux the pure alumina required for that process. Unfortunately, the proportion of silica contained in this bauxite occasioned very considerable losses in the manufacture, which was finally abandoned about 1873.

All the applications of bauxite thus far appeared to have been unsuccessful, when, about 1872, M. Trouilloud, a prospector, and M. Augé, a distinguished Chief of Division of the *chemine de fer du Midi*, brought to the writer a creamy white, pisolitic rock, which soiled the fingers when handled, and which had been found in a bed-vein of considerable size in the tunnel of St. Pargoire, near Villeveyrac (Hérault, France.)

The following analysis, which we have preserved, showed us immediately the importance of the discovery, and the existence of a new, namely, a white bauxite, containing:—

	Per Cent.
Al <sub>2</sub> O <sub>3</sub> .. .. .	82.00
SiO <sub>2</sub> .. .. .	2.00
Fe <sub>2</sub> O <sub>3</sub> .. .. .	0.10
Water .. .. .	14.20
Not determined .. .. .	1.70
	100.00

It was a native monohydrate of alumina, Al<sub>2</sub>O<sub>3</sub>. H<sub>2</sub>O.

This bauxite possessed a remarkable property—namely, it was easily and energetically attacked by sulphuric acid. It occurred to us at once to resume the attempt of Le Chatelier in the direct manufacture of sulphate of alumina. The small proportion of ferric oxide contained in the Villeveyrac deposit favoured this endeavour, and we were so fortunate as to establish, in 1875, the first works manufacturing sulphate of alumina from bauxite. The deposit was then exploited continuously and on a considerable scale.

The noted American manufacturers, Messrs. Harrison Brothers, of Philadelphia, having informed themselves concerning our bauxite process, introduced it at their works, and for more than a dozen years were consumers of the French white bauxites. But after the uses of the mineral had in this way become known in the United States, it was speedily discovered in Alabama, Georgia, &c. Thanks to our modest labours, therefore, but especially to those of Berthier and Le Chatelier, America has become independent of Europe for its supply of bauxite, except as to the non-siliceous variety, concerning which we shall speak in the sequel.

But one problem solved always leads to the solution of others. The new variety of bauxite recognised by us, as above narrated, contains much more silica than the selected specimen which we analysed in 1873. Certain German manufacturers, Messrs. Bergius, of Lissa-Schlesien, near Breslau; Messrs. Giulini Brothers, of Ludwigshafen; and Mr. Rademacher, of Carolinenthal, at Prague, in Bohemia, requested us to seek for them in France bauxites as nearly free as possible from silica. These manufacturers had, in fact, taken up again the Salyndres dry method of treating the red bauxites, by attacking them in the furnace with carbonate of soda. But, as had been the experience at Salyndres also, each unit per cent. of silica caused a considerable waste of alumina and silica, in the form of insoluble silico-aluminates of soda, during the treatment, the lixivation, &c.

Our investigations, and those of our colleague, Mr. Augé, were crowned with success. We were able to bring to light, in the French Departments of Bouches du Rhone, Var, Alpes Maritimes, &c., deposits of a perfectly red bauxite, constituting a fine homogeneous paste, and containing only from 1 to 3 per cent. of silica. This was still another new species.

The success of this bauxite was considerable. The mineral of Baux was abandoned, and the shipments of non-siliceous bauxite from the Var attained the figure of 20,000 tons per annum.

At last came the new method of the manufacture of aluminum by electrolysis, which America did so much to bring to light, and the demand became more imperious than ever for non-siliceous bauxites, which have been found, up to the present time, nowhere except in the South of France, but which may be hereafter discovered in the United States.

These bauxites, shipped to Germany, are transformed into pure alumina, which is then sent to all parts of America, notably to Pittsburgh, &c., for the manufacture of aluminum. It is scarcely necessary to point out, in passing, the advantage which would be derived by America from the manufacture upon its own soil of this alumina, which is now purchased at 700 francs, or \$140 per ton.

Such is the history, rapidly sketched, of the discovery of different varieties of bauxite, and the successive phases through which their commercial applications have passed.

\* A paper read before the Virginia Beach Meeting of the American Institute of Mining Engineers.

† The two gentlemen named, together with the writer, founded the firm of Augé et Cie, which has exploited the French bauxites since 1873.

(To be continued).



## REVIEWS.

## PROFESSOR LE NEVE FOSTER'S BOOK.

## CONCLUDING NOTICE.

*A Text-book of Ore and Stone Mining.* By O. Le Neve Foster, B.A., D.Sc., F.R.S. (London: Charles Griffin and Company, Limited.)

Mining proper is dealt with in three comprehensive chapters devoted respectively to excavation, to the methods of supporting excavations, and to exploitation. The first named gives an account of hand and machine tools, of the use of explosives, and of other methods of breaking ground, all of which are dealt with from a broad general standpoint, whilst sufficient detail is introduced to enable the student to understand the principles upon which the various operations and machines are based. In the second of the above-named sections we might, perhaps, wish to find the principles underlying the practice rather more fully elucidated; the author relies rather on the accounts of the methods employed in different parts of the world without attempting to institute any comparisons between them, or pointing out as fully as he might do the mechanical conditions of the problems that have to be solved. Nearly all questions of supporting excavations can be looked upon as special cases of pillars or girders subject to thrust, and the consideration of them as abstract mechanical questions often serves to throw a good deal of light upon the matter, or may even in practice give a useful hint as to how the available material may be disposed of to best advantage. The chapter on exploitation strikes us as the best of the three. The accounts of the various methods used in the exploitation of thick veins and masses are really admirable, and the examples have been selected with great care and judgment from all parts of the world, every prominent system being well represented, so as to present to the student all the various conditions under which such deposits have to be worked, the difficulties that are generally to be encountered, and the means that have most successfully been adopted to overcome them. Nothing could be better adapted to the needs of the student, and the author has throughout carefully borne in mind his own proposition that "books and lectures are not intended to take the place of practical teaching at mines, but they render the training more thorough and complete in many ways." No student can expect to get within the brief space of a year or so a practical insight into a tithe of the difficulties with which he may later on be called upon to cope, but as long as he has such instruction as this to guide him, he need never be really at a loss.

The next portion of the subject is treated of in a series of chapters on haulage, hoisting, drainage, and ventilation. The author has adopted the rather curious arrangement of separating the appliances used for conveying the miners to and from their work completely from those used for hoisting the mineral out of the mine, and treating of them in separate chapters, although it is by no means unusual to see the same machine doing duty in both capacities; the reason given in the text for this separation, namely, the amount of time and energy wasted in mines where no machinery is provided, whilst the old system of ladders is adhered to, scarcely strikes us as quite sufficient; indeed, the chapter is, even so, by far the shortest in the whole book. The greater part of this subdivision of the subject might be supposed to lie within the province of the mechanical rather than of the mining engineer. The latter is, however, usually charged with the selection of suitable machinery, although its designing and erection, as well as the duty of running it, and looking after it when erected, are all usually left to the mechanical craftsman. A miner must, however, know everything, however remotely connected with his subject, and here the connection is far too direct for him to be able to afford ignorance; at any rate he must know, and know thoroughly, the principles that underlie the application of the machinery used for the above purposes, and the proper amount of information is here most ably afforded him.

The chapter on ore dressing is probably the least satisfactory chapter of the whole book. In saying this we have not the least intention of suggesting that a better chapter on the subject could well be written than the one that Dr. Foster has given us; we merely wish to point out that he has attempted the impossible, and that failure, in a great measure, was a priori inevitable. The subject of ore dressing would demand for its adequate consideration a book at least as large as the whole of the text book of ore and stone mining now before us. In our opinion it is a matter for regret that the author has included ore dressing in this present volume, instead of giving us a separate work exclusively devoted to that branch of the subject, especially seeing that there is no such thing as a really complete work upon it in the English language. Mining students have always had to go for information to Rittinger's well known work, in the original German, it having never, as far as we know, been translated. Of late years, however, many of Rittinger's formulas have been proved to be inaccurate—or, at any rate, to be only imperfect approximations to accuracy, and the whole subject urgently needs revision. We can only hope that Dr. Foster will, in spite of the existence of the present chapter, at some future time fill this void in our mining literature. It is obvious from what we have said that there is little need to criticise this chapter in detail; we can only hope, in the interests of students, that the old adage, "A little knowledge is a dangerous thing," need not prove universally true.

Chapters on the principles of employment of mining labour, on the social and economic conditions of the miner, on accidents and mortality in mines, and a brief summary of British legislation affecting mines, complete this book, which, taken as a whole, is no doubt the best English book on general mining yet written. In a subject of such enormous magnitude it would be impossible to describe every method, every machine, and every mode of occurrence, and even if it were possible it would be a most unprofitable task, because the mass of matter thus collected would practically defy classification, and would only serve to bewilder instead of instructing the student. The principal task of a writer on mining is to exercise his power of judicious discrimination so as to present the reader with a well-chosen set of typical examples. After all, those which he selects and those which he rejects will depend very largely on his individual idiosyncrasies and on his personal experience, and it is most improbable that any two mining engineers of equal ability and equally great, though different, experience would pitch upon the same set. Our foregoing criticisms as to the omissions we have noticed must, therefore, be taken with this reservation, and with careful recollection of the fact that it was impossible to include everything. Apart from this, the only fault that we can find with Dr. Foster's book is that it neglects too much the commercial side of the question, and seems to lose sight of the fact that mining is a trade which is carried on simply with the object of making money. Details and estimates of cost are but rarely given, and we cannot look upon any book on mining, which does not contain a chapter on mining-book-keeping, as a complete student's manual. How entirely the financial side has been neglected is best evidenced from the fact that neither in the text of the book nor in its complete and carefully compiled index have we been able to find a single reference to the Cost-book, which plays such

an important part in the organisation of British metal mining enterprises.

## A NEW VIEW OF AN OLD SUBJECT.

*Les Travaux Publics et Les Mines Dans Les Traditions, et les Superstitions de tous les pays, par Paul Sébillot, Ancien Chef du Cabinet du Personnel et du Secrétariat au Ministère des Travaux Publics.* (Paris: J. Rothschild, Éditeur, 13, Rue des Saints-Pères, 1894.)

The French are apt, more than other nations, to impress their characteristics of mind and taste upon their literature, and we do not remember ever to have been more forcibly struck with the fact than when perusing the highly finished volume now before us. In the more superficial manners of binding and type the nationality is strongly marked. Again, in the selection of plates, sketches, and cuts there is apparent all the artistic whimsicality of our lively and satirical trans-channel neighbours. But it is the work itself as a contribution to literature which—in its subject, its method, its arrangement, its style—is most supremely French. A comparison of M. Sébillot's book with the books of English authors upon the same subject is in reality a comparison of the casts of mind peculiar to the two nations. All the oppositions of thought, feeling, and sentiment stand out in sharply-defined contrast. The several works upon the railway, which have recently issued from the London Press, have evidenced in their every paragraph the sober, practical stamp of thought which has brought upon the British nation the half-humorous depreciation of Continental writers. Mr. John Pendleton, for instance, has put together an interesting narrative of the history and progress of the English railway system. The lighter side of it he has not altogether neglected, but everywhere we find him insisting upon the fact, everywhere pointing the finger approvingly at the vigorous growth of our commerce, and to the important part played by the railways in modern industry. M. Sébillot has not found in the network of French railways a striking indication of the characteristic of the age. It is valuable to him chiefly as a gathering ground for *croquantes et superstitions*. As an instance of this, it may be said that M. Sébillot has cited so many legends about the devil, that if they were founded in fact, the arch-temper must have built more bridges and railroads than any seven contractors in the civilised world. The author goes through all the branches of industry which must have come under his notice in the Governmental Department of Public Works and Mines, and in each case gives us a budget of proverbs and legends, the collection of which must have been a work of interest and time. It has been reserved for him to show that these eminently practical and matter-of-fact departments of human energy are associated with a wealth of folk-lore and poetry such as creates a pleasing contrast in the mind. The Department of Mines is largely represented. The conditions under which the miner works are able fully to account for the superstitious characteristics attributed to him:—"Jusqu'à ces derniers temps, les mineurs ont été très superstitieux, attachant une importance considérable aux rencontres faites au moment de se rendre à la mine, aux bruits dont ils ne se rendaient pas compte et à une foule de circonstances futiles en apparence." Notwithstanding this, however, "le côté imaginaire est bien peu développé parmi eux; les légendes, les contes et les chansons de la mine sont, on tout pays, extrêmement rares, alors que tout à côté les paysans ont une littérature orale d'une grande richesse." Perhaps the most striking feature of the volume is its collection of illustrations. These are gathered from all sources and are of all kinds. The art-loving subjects of the Mikado have their handiwork largely drawn upon, and the selection is always happily and judiciously made. Japanese bridges and ports are reproduced with all the quaint style of build and ornament which is theirs. A collection of medals, issued by the different heads of the French state, and bearing their reposeful and finely-moulded features upon them, is quite in keeping with the high artistic level attained by the work as a whole. To those men in whom the love of industry has not altogether choked the love of art, who are able to take a higher view of those factors in our life which are a means and not an end, we can heartily recommend this work which bears deep upon it the stamp of a cultured and an artistic mind. These we congratulate upon the opportunity of perusing the volume, and the author upon having had the mind, the energy, and the opportunity to produce it.

## AN ENGINEERING PERIODICAL.

*The Engineering Magazine* (European Edition), July Number. The Electrician Printing and Publishing Company (Limited), Salisbury Court, Fleet-street, London.

We have just received the July number of this artistic and valuable magazine. As usual, its plates are excellent, its articles interesting, well-selected, and ably written, while altogether it may be said worthily to represent the important industry indicated by its title. One article is on "The Political and Economic Importance of the Great Siberian Railway," another describes the "Quarrying Methods of the Ancients," while a third narrates the progress attained in the adaptation of the electrical locomotive to the needs of practical life. These variously selected articles apart, there are separate sections devoted to electricity, architecture, railways, mining and metallurgy, civil and mechanical engineers, followed by some vigorously penned "Comment and Criticism." From these particulars it will be seen that this organ of American engineering is a representative one, and that it covers its ground thoroughly and well.

A PREHISTORIC DIAMOND MINE.—Exploitation, writes a correspondent of the *Leeds Mercury*, in what appears to have been a prehistoric diamond mine, recently discovered near Winburg, in the Orange Free State, has disclosed some curious and interesting circumstances. The shaft is almost perpendicular, and at the bottom, 150 feet from the surface, workings or tunnels branch off a distance of several hundred feet, much after the fashion of an English coal mine. The ground in the workings is diamondiferous, and many small gems have been found in the recovered debris. Appearances indicate that the mine had been worked secretly, and that the miners were armed, for old-fashioned spears and battle axes have been found side by side with primitive tools and skeletons of men, who must have been much above the average stature of any race of the present day. Stones, bearing inscriptions in curious characters, have also been found. It is yet a matter of conjecture as to what race worked these old diamond mines. The natives of the country have not even a legend or tradition regarding them. During the past few months there has been great activity in prospecting for new diamond mines in South Africa, and by last mail there is the official announcement by the Free State Government of the discovery, near Bloemfontein, of what appears to be a remarkably rich and promising spot. It has long been the theory of old diggers that diamonds are distributed over a very wide area in South Africa.

THE AFRICAN GOLD RECOVERY COMPANY (Limited) announce that 51,500 ounces of gold have been recovered at the Randt, and 6500 ounces in other districts, total 58,000 ounces during June, by means of their MacArthur-Forrest cyanide process. The May total was 57,850 ounces.

## THE MANGANESE MINES OF LAS CABESSES, PYRENEES, FRANCE.

By W. GUTHRIE BOWIE.

YOUR always valuable Journal of 23rd June last supplies another much needed and very valuable addition to our knowledge of mines and minerals, furnished by the important paper read before the Institution of Mining and Metallurgy, by the able member and mining engineer, Mr. C. Algernon Moreing, as to the Mines of Manganese, Las Cabesses, Pyrenees, France. As one who has for long and actually at present is largely connected with some of the manganese mines of this province of Huelva and Portugal, of the class to which Mr. G. E. Collins makes reference, I hope I may be allowed to venture a few remarks as to these, leaving aside for the present the geological formation, origin of deposits, methods of mining and treatment, &c., in order to be as brief as possible.

Mr. Moreing states that Las Cabesses are the only mines of carbonate of manganese in the world being worked on a commercial scale. This is so, for in all our range of knowledge, which embraces all the important centres for manganese in the world, we are not aware of any mine being worked alone for and yielding paying produce from this carbonate of manganese alone on a commercial scale.

On the other hand, for some years endeavours have been made to treat and turn to use the carbonates and silicates of manganese found abundantly in the mines here and the neighbouring provinces; but low prices and heavy deductions for impurities have as yet been too much to encourage operations. Among the investigators of these ores may be mentioned Mr. F. Johnstone, formerly chemist at the Rio Tinto Mines, and now in that capacity to the Tharsis Company, who, in his professional investigations of the ores and surroundings of the mines of these companies, has had for long occasion to draw attention to these rejected carbonates. Other parties are the important mine owners and exporters of manganese ores, Messrs. Sundhium and Doetsch (it is to be regretted Mr. Doetsch has recently died), who have for long studied this variety abundant in their mines, and who are now giving fresh stimulus to manganese mining here by their investigations in depth for this carbonate. While as to others, with myself, we have several, five of which are the largest in this province for carbonate, and also silicate, besides the abundant black oxide of 72 per cent. to 86 per cent. MnO<sub>2</sub>, very suitable as a source of oxygen or metal, and another class with more iron, more suitable for metal than oxygen, ranging from 49 per cent. to 53 per cent. Mn. These two last are the ores we treat and sell, as being the easiest and cheapest to prepare; while the larger masses of carbonate and silicate are rejected up to date, as was the case in Las Cabesses, and immense quantities exist thrown to the waste and tip heaps. The mines also contain masses of undisturbed ores of this class. So much is this the case that one of these alone can give at once 100,000 tons of mixed ores of carbonates in the raw state, and any one of the others at least half this, and all independent of further investigations in length and depth. All are, as Mr. Collins states, in sites favourable for economical transport, but to calcine, brush wood is the only available fuel, and in some sites not very abundant. Mr. G. E. Collins refers to silica and phosphorus. Regarding silica we have sometimes considerable difficulty to keep under 12 per cent., even with the black oxide. When these come from irregular and mixed pockets in the carbonate or silicate masses, or manganese spar, but when the ore comes from large deposits and requires little classification, there is less silica. The SO<sub>2</sub> in the outcrops ranges up to a nearly pure quartz, hence silica is our evil. There is very little limestone or even lime in the composition of the surrounding rocks as compared with that in the description of Las Cabesses.

Mr. Collins says about 20 per cent. phosphorus. Well, there may be some instances of salmon-coloured silicate that may have come under his notice as high as this, although so far such have escaped us. Now, the black oxide and carbonate must have less than 0.08 per cent. phosphorus—that is, 2.25th parts of 1 per cent., and we have to keep below this, otherwise the ore is rejected by the iron and steel manufacturers. Might not an abundant ore of manganese, with 20 per cent. phosphorus, or an ore of any other metal containing this, be of commercial value for phosphates?

The manganese ores in general of this province have difficulties as to impurities, silica being the worst. As to phosphorus, some carry more than others; but as stated, the fatal margin allowed is 2.25th of 1 per cent., so to say the ores here have 20 per cent. phosphorus is equivalent to put a total and complete condemnation of Huelva manganese, whether black oxide or carbonate, for metal purposes.

Most of the manganese mines here form the crest or summits of the hills, and are generally high above any surface and soil impurities, and if any trace of phosphorus is found one would think if from soil this high position would save them, or if infiltrated would again be washed out, or that in depth it is more likely to increase, being more subject to deposition and contact with other rocks, that is—if it is possible for such decompositions and impregnations to exist under the present composition of these rocks, and our present atmospheric and other agencies to produce them.

Why have the carbonates here not been treated? has been asked before now. The reasons they have been thrown away or left in the mine are various, as follows:—

The abundance of black oxide, and the supply for some years past exceeding largely the demand, lowering values, and increasing deductions for impurities, making it even difficult to dispose with advantage of this more easily and economically produced class, is itself an important reason.

Also in the majority of cases no proper systems of analysis have been carried out other than for metal and peroxide, and if the ore had not the black colour the grey was picked out and thrown away, or left in masses in the mine, and no further attention given to it up till lately.

Again, in other cases a knowledge of how to deal with the carbonate has been absent, and those who know how do not care to enlighten the ignorant ones, at least until they can secure all the valuable properties which just now are at a low value, both from low value of ore and ignorance of contents. Lastly, one of the greatest difficulties is the disposal of the ore. It often happens after careful preparation and assays within the margin and shipment to England, all costs being on this side, until put in wagons in an English port, the buyers or agents find out some right or wrong excuse to refuse the cargo, and throw it on the producers' hands. Generally the dispute is as to silica, &c., and the cargo has to be sold at any price to save further losses to us on this side, buyers having thus the advantage. These complications show how the commercial aspect of an ore tends to obscure the technical when abundance and difficulties depreciate its value, causing its neglect, and discouraging all investigations and studies of the same, as has been the case now for some years in this province, in respect of manganese ores, and especially the carbonate.



An impulse has been given to mining of this kind, and again this province may take a foremost place as it did for the black oxide some 20 years ago, but it is also true that until lately there have been ignorance and neglect, of which the knowing ones have taken advantage, and every one connected with manganese mines here are, I suspect, only now taught by the operations at Las Cabes, which is showing the way to others, and every one will always thank the only mining engineer, Mr. Moreing, who has approached this subject with his valuable paper, and clear information on this variety of ore. The good results of this, due to this gentleman, to the Institution of Mining and Metallurgy, and to your ever-increasing in value *Mining Journal*, will, I assume, eventually be found to far surpass the most sanguine expectations.

## LATEST FROM THE MINES.

### CABLEGRAMS AND TELEGRAMS.

**ALADDIN'S LAMP.**—The following cablegram has been received from the mine:—"During the last four weeks 197 tons of ore have been crushed, yielding 102 ounces of gold. We had trouble at first with the Ball mill, but it is now running well and we are now putting through good ore. Have struck a seam of rich ore in winze No. 2 on the 500 feet level north west drive, but cannot yet give the extent of it."

**ASIA MINOR.**—Production to June 22.—Lidjessy Mines: 2067 tons crude ore crushed yielding 145½ tons rich silver lead. —Gemin Bel Mines: 50½ tons rich silver lead.

**AUSTRALIAN BROKEN HILL CONSOLS.**—The following telegram has been received from the general manager, dated Broken Hill, July 7:—"2 tons 10 cwt., 813 ounces of silver. There is a slight but undoubted tendency to improvement."

**BLOCK B, LANGLAAGTE.**—Production for June. By cable:—"Mill: Ore crushed, 6518 tons of 2000 lbs.; gold returned, 1610 ounces.—Tailings, cyanide process: Tons treated, 6020 tons of 2000 lbs.; gold recovered, 761 ounces.—Concentrates, cyanide process: Tons treated, 96 tons of 2000 lbs.; gold recovered, 177 ounces; total gold recovered, 2548 ounces."

**CHIAPAS.**—The directors have received the following cable from the mine:—"During June the mill ran 28 days. 2050 tons of ore were crushed, producing 72 tons of concentrates."

**CRAVEN'S CALEDONIA.**—The following cablegram has been received, giving the result of crushing for past fortnight, dated Charters Towers, July 9:—"320 tons yielding 790 ounces gold. Crushing expect to commence about two weeks."

**CROWN REEF.**—Results for June. Yield in smelted gold from 120 stamp mill, 6014 ounces; yield in smelted gold from 120 stamp cyanide works treating tailings and concentrates produced by the mill, 2631 ounces; yield in smelted gold from old cyanide works treating accumulated stock of tailings and slimes, 1638 ounces; total, 10,283 ounces.

**CROWN REEF.**—Results for June, 1894, received by cablegram from Johannesburg, July 13, 1894: Number of days working 120 stamp mill, 29 days; crushed by 120 stamp mill, 16,799 tons; accumulated tailings and slimes treated, 8993 tons; yield in smelted gold from 120 stamp mill, 6014 ounces; ditto from cyanide works, 2631 ounces; ditto from old works, 1638 ounces; total, 10,283 ounces.

**DE LAMAR.**—The following is the cabled return for the month of June: "Crushed during the month 3997 tons. Bullion produced in the mill \$70,400, estimated value of shipping ore \$7708, miscellaneous revenue \$737, total produce \$78,845, total expenses \$36,790, estimated profit for the month \$42,055, or at \$4.90 to £ sterling £8582."

**DURBAN-ROODEPOORT.**—The following results for June have been received by cable:—"Quartz milled 6545 tons, yielding 3225 ounces, 70 stamps, 27 days. Tailings treated 8240 tons, yielding 1969 ounces. Total, 5194 ounces."

**EXPLORATION (Alaska Mexican Gold Mining Company).**—Cablegram from Alaska reports the clean-up for the month of June as follows:—"Period since last return, 30 days; bullion shipped, \$21,226; ore milled, 6291 tons; sulphurets treated, 104 tons; of bullion there came from sulphurets, \$4277; working expenses for period, \$9443."

**ELKHORN.**—The following is the cabled return for the month of June:—"Mill worked 29 days and crushed 1136 tons. Bullion produced in the mill \$24,345, 184 tons of smelting ore sold \$13,348; total produce \$37,693, total expenses \$21,672; estimated profit for the month \$16,021, or at \$4.85 to £ sterling £3303."

**FERREIRA.**—Copy cablegram received from Johannesburg Results for June:—"Tons crushed, 3821; bar gold extracted, 5007 ounces; concentrates caught, 145 tons; assay value of concentrates, 6 ounces 18½ dwts. fine gold per ton.—Cyanide Works: Bullion produced from tailings, 1229 ounces."

**GELDENHUIS ESTATE AND GOLD.**—A cablegram has been received from the head office at Johannesburg, stating the following results for June:—"Crushed 9034 tons, obtained 4120 ounces of gold. Profit for month £5250."

**GEORGE GOCH.**—A cablegram from Johannesburg gives the result of working during June as follows:—"5416 tons crushed, yielding 1626 ounces of gold and 1023 ounces from tailings. 50 stamps at work."

**GOLDEN FEATHER CHANNEL.**—The following has been received by cable from Colonel Frank McLaughlin, the company's general manager at Oroville:—"Foot dam will be completed about the 12th July. Work going ahead rapidly and well."

**GRAVEL GOLD.**—The directors have received the following cablegram of the result of run No. 7:—"We have cleaned up after washing 950 hours. The gross returns are £700. We have re-commenced running on the Rica bank."

**GUADALCAZAR QUICKSILVER.**—The quantity of quicksilver drawn off during the four weeks ending June 28, as cabled from the mines, amounts to 10,500 lbs.

**GEORGE AND MAY.**—Crushing for June 1221 ounces from 2894 tons. Profit on the month's working £1400.

**GINSBERG.**—Result of June crushing 1062 tons, producing 611 ounces of gold."

**GLENCAIRN MAIN REEF.**—"Production for June, 4275 ounces; profit, £5600; 50 stamps running 28 days."

**HARQUAHALA.**—Following is the cabled estimated return of this company for the month of June:—"Crushed during the month, 3262 tons; estimated gross value of gold produced, including clean-up for three months, \$36,500; miscellaneous revenue, \$500; total, \$37,000; estimated total expenses, \$13,000; estimated profit for the month, \$24,000, or at \$4.90 to £ sterling, £4897." The directors have declared a dividend of 9d. per share, free of income tax, for the quarter ended June 30, making a total distribution of 2s. per share, or 10 per cent., for the year ended the same date. Warrants will be posted on the 31st inst. to all shareholders registered on the books on the 2nd inst.

**HENRY NOURSE.**—Crushing for June, 2133 tons produced 1762 ounces; cyanide works 1800 tons produced 667 ounces; total, 2429 ounces."

**JUMPERS.**—A cablegram has been received from the head office at Johannesburg, stating the following results for June:—"Crushed 8986 tons, obtained 4016 ounces of gold and concentrates equal to 687 ounces of gold. Total 4703 ounces of gold. Profit £5500."

**KABOONGA.**—The following cablegram has been received from the manager at the mine:—"Two borings in south-east drive prospected and results satisfactory. South-west drive going on same as last reported."

**LANGLAAGTE ESTATE AND GOLD.**—Production for June. By cable:—"Mill: Stamps running, 160; ore crushed, 23,508 tons of 2000 lbs.; gold returned, 7003 ounces.—Tailings, cyanide process: Tons treated, 23,320 tons of 2000 lbs.; gold recovered, 3724 ounces.—Concentrates, cyanide process: Tons treated, 405 tons of 2000 lbs.; gold recovered, 1356 ounces; total gold recovered, 12,083 ounces."

**LAS CABESSES MANGANESE.**—Production for the week ending July 7 (six working days) 514 tons, or a daily average of 85 tons.

**LANGLAAGTE ROYAL.**—Production for June: "1619 ounces from 3958 tons; battery 2555 ounces from 10,640 tons cyanide; profit £6050, £1300 spent on extra development."

**MALLINA.**—The following cable has been received by the secretary from Mr. Kerr, the manager of the mine:—"All the plant landed at Balla-Balla. Struck a rich body of ore, 30 ounces per ton. We estimate the amount of ore in sight at 2000 tons. Good quality. Ore improving in quality as developed." Writing from Roeburne, dated 22nd May, 1894, Mr. Sanderson, the engineer, who has just arrived in Western Australia, says: "There is no doubt whatever about Mallina. I have met a good many men that have worked there, experienced men, too, and they all say that Mallina is the finest property in Western Australia. Now, considering that the Mount Prophecy Claim, in the Pilbarra district, runs about 4 ounces to the ton, it means a lot to say that the Mallina is the best."

**METROPOLITAN GOLD.**—During June crushed 2770 tons, obtained 940 ounces of gold.

**MILL'S DAY DAWN UNITED.**—The agent has received the following cablegram from the directors at Charters Towers:—"Have crushed during the four weeks ending 7th inst. 3710 tons of quartz for 4935 ounces of gold. Have declared the usual monthly dividend of 6d. per share payable on Monday 23rd inst. The approximate value of this return is £17,000."

**MOSMAN.**—The directors have received the following cablegram from the manager at Charters Towers:—"Have crushed 201 tons of stone from North Australian shaft for 336 ounces of gold. We are now crushing ore from the Wyndham shaft. The approximate value of this return is £1150."

**MOUNT LEYSHON.**—The Mount Leyshon (Limited) have received the following cablegram, dated 10th inst., from their manager at Charters Towers, giving the fortnightly crushing:—"1200 tons crushed 211 ounces gold. 30 stamps out of 40 ran 12 days. Profit £49."

**MOUNT MORGAN (Queensland).**—Results for the month of June. Tons chlorinated, 6307; gold returned, 10,203 ounces.

**MYSORE-WYNAD AND MYSORE WEST.**—Tank Block. A correction from India of the telegram received and published on the 6th inst., shows that the width of the vein named on lode in winze 2½ feet, assaying an average of 2 ounces per ton, and the 400 feet level 1½ feet, assaying an average of 7 ounces per ton.

**NEW CLEWER ESTATE AND GOLD.**—Results for June: From mill working 27 days crushed 1863 tons, yielding 769 ounces of gold. From cyanide works treated 1500 tons, yielding 683 ounces of gold. Total yield 1452 ounces of gold. Total value £4225.

**NEW DOURO.**—Month of June. Mill worked 18 days (stopped part of month for repairs and renewals); ore crushed 139 tons; gold recovered 61 ounces 6 dwts.

**NEW QUEEN.**—The directors have received the following cablegram, dated Charters Towers:—"Started crushing No. 1 formation 7th July."

**NEW QUEEN.**—The directors have received the following cablegram, dated Charters Towers, July 9:—"Shipped 860 ounces gold per *Jumna*, last month's return."

**NEW CRESES.**—Cable advice has been received from the head office at Johannesburg, to the effect that the erection of the new 60 stamp mill is being proceeded with, with all possible speed, and it is anticipated will be concluded in October next.

**NEW HERIOT.**—Last month's crushing yielded 4093 ounces.

**NEW KLIENFONTEIN.**—"Result of last month's crushings yielded 2213 ounces of gold; expected profit, £2800."

**NEW PRIMROSE.**—"Production for June, 7160 ounces; profit £8700; 100 stamps; 28 days."

**OCEANA TRANSVAAL COAL.**—Second monthly return of coal sold May 1894:—1428 bags of 200 lbs. each.—Note: Deliveries curtailed through temporary absence of transport.

**PAARL CENTRAL.**—A cablegram has been received from the head office at Johannesburg stating the following results for last month (June):—"Mill: Crushed 4413 tons, yielding 1917 ounces of gold. Cyanide works treated 3010 tons, yielding 606 ounces of gold. Total value £8300." Advice by cable has also been received by the London agents that the next half-yearly general meeting of shareholders will be held at Johannesburg on August 30. The transfer registers will be closed from the 23rd to the 30th August, both days inclusive.

**QUEEN'S BIRTHDAY UNITED.**—The directors have received the following cable from Mr. W. T. Hansford, the company's local secretary at Dunolly, dated 5th inst.:—"We are now crushing ore at the Centre shaft, very pleased with the look of the mine at the various levels."

**QUEEN'S BIRTHDAY.**—"Have struck reef at 330 feet level. Very good."—Hansford.

**RANDFONTEIN ESTATES.**—Production for June. By cable:—"Mill: Ore crushed, 8423 tons of 2000 lbs.; gold returned, 2703 ounces.—Tailings, cyanide process: Tons treated, 4620 tons of 2000 lbs.; gold recovered, 456 ounces. Total gold recovered, 3159 ounces."

**ROBINSON.**—Production for June. By cable:—"Mill: 70 stamps at work; 9222 tons of ore crushed; yielded in smelted gold, 9075 ounces; from concentrates (by chlorination), 1148 ounces; from tailings (cyanide process) 1794 ounces; from own ore, 12,017 ounces; from concentrates bought (by chlorination), 2784 ounces; total gold recovered, 14,801 ounces."

**ROODEPOORT UNITED MAIN REEF.**—Crushing for June, 3730 tons produced 1780 ounces; cyanide works produced 1265 ounces; total, 3045 ounces; estimated profit, £3910.

**TRANSVAAL COAL TRUST.**—The following is a copy of a cablegram which has been received from the Transvaal Coal Trust Company (Limited) at Johannesburg with reference to that company's operations for June:—"Output, 24,900 tons; profit, £4400."

**TRANSVAAL GOLD EXPLORATION AND LAND.**—The directors have received the following cablegram:—"Ore mined, 1250 tons; ore treated, 1000 tons, yielding 1425 ounces; tailings treated 675 tons, yielding 900 ounces; total for June 2325 ounces. Working costs £2760."

**VICTORIA GOLD MINING ASSOCIATION (Charters Towers).**—The fortnightly crushing has been cabled as follows:—"276 tons yielded 448 ounces gold."

**VILLAGE MAIN REEF.**—The following is the result of last month's crushing:—"Mill ran 29 days; crushed 3750 tons, which yielded 2500 ounces free gold, and 80 tons concentrates, assaying 3 ounces. Tailings assayed 4 dwts."

**WAIHI.**—Bullion return for 28 days ending June 30, £6200 from 2100 tons.

**WEMMER.**—Cablegram from Johannesburg advises work done during June:—"4782 tons crushed, yielding 2554 ounces of gold. 40 stamps working 29 days."

**WENTWORTH EXTENSION.**—Report dated June 2:—"Main shaft: East crosscut is in 140 feet, progress during the week 8 feet, cutting through diorite. West crosscut was advanced 9 feet, total length 79 feet, without change."

**WEST AUSTRALIAN GOLD FIELDS.**—The manager of the West Australian Gold Fields (Limited) has received a cablegram from Mr. H. J. Saunders, announcing that he has secured an interest for the company in the syndicate which has been formed in Perth to acquire the new claim south of Coolgardie, from which, as reported a few days ago, about 1000 ounces per day are being obtained by dollying. These results have produced great excitement in Western Australia, and the whole of the capital for the syndicate was, the cablegram asserts, quickly subscribed. Mr. Saunders has gone to Coolgardie to complete the purchase.

**WORCESTER EXPLORATION AND GOLD.**—"Result of last month's crushings yielded 2796 ounces of gold."

## NEWS FROM THE COLLIERIES.

### NOTES ON THE INDUSTRY.—STATISTICS AND REFERENCES.

The Tendring Hundred (Essex) Water Company have consented to place at the disposal of the Eastern Counties Coal Boring Association, the well which that company bored at Bradfield to the depth of 800 feet, and which they then abandoned, because no proper water supply was reached. It was at a deep well-boring at Harwich, not far distant, where the first indications of underlying coal were found.

In the House of Lords on Thursday, the Earl of Chesterfield, in moving the second reading of the Coal Mines (Checkweigher) Bill, explained that it was substantially the same as the Bill which was introduced last year in the House of Commons by a mining representative. The Bill made it an offence for any owner, manager, or agent of a mine, or any other person acting on their behalf, to interfere with the appointment of a checkweigher, or to neglect or refuse to give facilities for the appointment, and it forbade the owner to attempt by bribes, promises, notice of dismissal, or by any other means to exercise an improper influence in respect of the appointment, or to induce the miners to vote or not to vote for any particular person, under a penalty of £20 in the case of an owner, agent, or manager, and £2 in the case of other persons. The miners were firmly persuaded that their interests required that there should be an absolutely free choice of the checkweigher, whose duty it was to weigh the quantity of mineral raised as between master and workman, and that the magistrates should not be able to dismiss him from his office except for misconduct or other causes contravening the Coal Mines Regulations Act, 1887. The Bill was read a second time.

An alarming accident occurred about midnight on Monday at Spring Vale, Wolverhampton. Near to the large ironworks of Sir Alfred Hickman, M.P., the banks of the Birmingham canal gave way, creating a huge gap, through which the water rushed with great force. Several collieries were flooded, a cottage was inundated, and enormous damage was done, the most serious effect being the stoppage of several large works and the suspension of all canal traffic between Wolverhampton and Birmingham. Two thousand men are thrown out of employment. The damage will amount to about £8000.

Prospecting operations for coal are being carried on near the town of Kobé, in Japan. A shaft is being sunk, a depth of 372 feet having already been reached.

The recent coal strike in the East cost U.S.A. \$20,000,000, of which the strikers lost \$12,500,000, and the operators and railroads the remainder. It was finally ended by arbitration and compromise.

At a meeting of the executive committee of the Cumberland Miners' Association at Maryport, Mr. Sharpe, miners' agent, was instructed to write to the secretary of the Coalowners' Association, asking for a general advance in wages equivalent to the reduction by the arbitration award in July, 1892, which amounted to between 10 and 12 per cent. The reason stated for asking for the advance is the benefit which the coalowners are alleged to be now deriving from the Scotch strike, and as the principal argument used in obtaining the reduction in 1892 was the keen competition of Scotland, the committee consider that, such competition being now removed, they are justly entitled to an advance.

The following are the returns for South Wales and Monmouthshire for the past six months of the export of coal, coke, patent fuel, and iron:—

	Coal.	Iron.	Coke.	Patent Fuel.
Cardiff ....	5,761,090	18,578	54,353	151,840
Newport ..	1,286,928	12,736	2,584	22,445
Swansea ...	503,855	707	1,390	143,185
Llanelli ....	85,256	812	32	2,921
	7,637,129	32,833	58,359	320,391

The Government Geologist (Mr. E. F. Pittmann, F.G.S.), speaking on May 21st, before the Public Works Committee, at Sydney, said that Wyalong was likely to be a permanent field, capable of supporting a fairly large population. Shafts have been sunk to a depth of 100 feet, and he anticipated that when 200 feet had been sunk, granite would be met with. He expected that a rich alluvial deposit would be found.

The Godkin Silver Mine, Tasmania, has been purchased by Mr. James Barclay, a Launceston creditor, for £29 10s. This has been done by arrangement with Mr. Godkin in the interests of the miners and shareholders.



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in the United States, and obtaining special information as to their  
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### CONTENTS

Of this Number of "The Mining Journal, Railway and  
Commercial Gazette," July 14, 1894.

NEW PATENTS ...	757
CONTRACTS OPEN ...	757
OUR INQUIRY COLUMN ...	757
MECHANICAL ENGINEERING, &c. A New "Non-Drip" Shaft Bearing ...	758
GEOLOGY AND MINERALOGY OF SHASTA COUNTY A NEW METHOD OF SMELTING IRON PYRITES, &c. ...	759
MEETINGS OF MINING COMPANIES— Dolcoath; The Barret Gold Mining Company ...	760
South African Trust and Finance; Sheba Gold ...	761
Moodies Gold Mining Company ...	762
New Spes Bona Gold; Killifreth ...	763
FORTHCOMING MEETINGS ...	763
THE BAUKITES ...	763
REVIEWS ...	764
THE MANGANESE MINES OF LAS CABESSES PYRENEES, FRANCE ...	764
LATEST FROM THE MINES: Cablegrams and Telegrams ...	765
NEWS FROM THE COLLIERIES ...	765
LEADING ARTICLES— Some Causes of Failure in Mines; Prospects of Iron & Steel Prices ...	768
NOTES AND COMMENTS ...	767
OUR CITY ARTICLE ...	768
COMPANY FINANCE ...	768
MINING NOTES ...	769
THE EDITOR'S LETTER BOX ...	769
THE METAL MARKETS— The London Metal Market ...	769
"THE MINING JOURNAL" SHARE LIST ...	770-771
MINING IN CORNWALL AND DEVON ...	771
REPORTS FROM THE MINES ...	771
RAYLEY'S REWARD CLAIM GOLD MINING COMPANY ...	774
BOARD OF TRADE RETURNS FOR JUNE ...	774
PROVINCIAL SHARE MARKETS ...	775
ALASKA TREADWELL GOLD MINING COMPANY ...	776
ADVERTISEMENTS—(See Index to Trade Advertisements, p. 754).	

LONDON: JULY 14, 1894.

### SOME CAUSES OF FAILURE IN MINES.

WHAT may be termed the purely geological reasons of  
non-success in mining matters will, little by little,  
disappear, as the higher education of mining engineers  
advances towards perfection. Coal will no longer be looked for  
away down in the Silurian or lead mines opened up in the  
Permian, to quote two extreme instances of error, and in this  
article it is not intended to dwell upon failures due to mistakes  
of this kind, but rather to assume that the mineral has been  
proved to exist in workable quantities, and to point out some  
of the causes, which will prevent its being successfully extracted.  
Among the more self evident of the causes of failure is the situa-  
tion of the mine, and this is intimately connected with the  
cost of transport of the ore. A mine may be a veritable moun-  
tain of metal, but if it is so placed that the ore cannot be  
placed on the market at a price which will leave a  
margin of profit, the abundance of the ore will not prevent  
the mine from being classed amongst the failures. It will, of  
course, be argued that a light railway can now be built to places  
which have long been inaccessible; but it must not be  
forgotten that interest has to be paid upon the cost of con-  
struction, and that this interest has to come from the profit  
margin. To this interest must be added the cost of working  
and maintenance; and the total will generally mount up to a

very respectable figure per ton, which should by no means be  
ignored in drawing up the estimates. Sometimes the transport  
has to be effected partly by road, water, and rail, and here, in addi-  
tion to the actual cost of carriage, the cost of transfer and the  
consequent loss of mineral become a serious item. This loss  
may be due to the bursting and leakage of the bags contain-  
ing the ore, or to actual theft, especially where the ore is carried  
long distances by mules, and supervision becomes a very difficult  
matter. Over and over again has a good mine been strangled by this  
transport question, which has either been ignored or inten-  
tionally forgotten until the enterprise was fairly embarked in,  
and it was too late to withdraw. After a more or less prolonged  
struggle the mine has had to be abandoned, and if road trans-  
port alone has been relied on, it will in all probability be idle  
for years until the country generally is opened up and railways  
are constructed. On the other hand, if the mine comes to  
grief through the exhaustion of its capital by the construction  
of a railway of its own, it will probably be thrown upon the  
market and purchased for an old song. The purchaser thus  
gets hold of a good partly-developed mine, with all its ma-  
chinery and appliances, for a nominal sum in comparison with  
the original capital, and very often makes a great success at the  
expense of the original shareholders.

In connection with that of transport is the question of  
labour and materials, especially in the case of foreign mines  
where European skilled foremen and workpeople have to be im-  
ported, as not only must suitable lodging be found for them,  
but the regularity of supplies ensured. The climate also largely  
affects the native labour market, for men who can live on a few  
oranges and a cigarette per day will prefer to earn one good  
day's pay per week, and bask in the sun for the rest of the week  
on the strength of it. The term "labour is abundant and  
cheap" is, therefore, apt to be misleading unless some data  
are given as to the class of men to be employed as labourers.  
This point is of importance, as the success of a mine depends  
largely upon its regular and systematic working in order that  
the mill may be kept in full swing, and the costs per ton kept  
within proper limits. We have had considerable experience of  
the difficulties inherent to hot climates, and a religion which  
provides a fête day on the slightest possible or no excuse, and  
can quite sympathise with those who work under similar  
conditions.

While on the question of labour, we will branch off for a  
moment to that of strikes, the effect of which is often to run up  
the cost of production beyond that of the selling price of the  
mineral, and so lead directly to the ruin of the company, the  
stoppage of the works, and the dispersal of the work people and  
their families. The principle that "half a loaf is better than no  
bread" is not one which appeals forcibly to the miner, and while  
we fully admit that his calling demands a fair remuneration, we  
are aware that many mines have been closed simply through  
his extortionate demands. Our experience has been with men  
whose blood is as hot as the sun they live under, and although  
we were fortunate enough to escape with a whole skin, our col-  
leagues were not equally so. Without going further into this  
subject, which is, perhaps, one of the most controversial that  
could be raised at this present time, we will content ourselves  
with saying in the present article that if only the work people  
would be moderate in their demands, there are many mines in  
our own country which, with rock drills and the modern im-  
proved concentrating machinery, could be worked to a fair profit  
on their working capital.

### PROSPECTS OF IRON AND STEEL PRICES.

TO all the interests connected with the metal markets, from  
mining to the engineering and hardware industries, the  
protracted depression in the selling values of iron and  
steel is one of the most serious factors at the present moment.  
For a long while all the internal conditions of the iron and steel  
trades have been favourable to a rise in prices, and with the  
utmost persistence the stagnation of demand has kept these  
conditions from expressing themselves in an upward movement.  
Before the disastrous coal strike it looked as if iron and steel must  
certainly emerge from its long imprisonment in the gloom of profit-  
less prices, and at the beginning of this year again the best hopes  
were entertained of revival. So far were these anticipations  
from being realised that the quietude in this branch of the  
metal markets has continually deepened all through the year.  
The latest returns show a complete absence of any enlarge-  
ment of demand, and, therefore, of any escape from the present  
unremunerative prices. In the first five months of 1894  
there was a reduction of no less than 136,000 tons in  
the amount of iron and steel sent abroad as com-  
pared with the corresponding period of 1893, and the decline  
in value amounted to the really alarming figure of  
£1,389,248. If we could take these figures as indicative  
of the general condition of trade—and iron and steel statistics  
are, as a rule, the most trustworthy guides possible—it would  
seem as if there were nothing at all hopeful in the outlook.  
We know, of course, that in the present instance the influences  
represented in these figures are peculiarly unfortunate, and that  
the general aspect of affairs, and the prospects of the metal  
markets generally, are much better than they would represent.  
The depression is largely due to the stagnation in railway build-  
ing, but that may co-exist with activity in many other  
directions. There is hardly any movement in the British  
iron trade. The singular hopelessness of this staple industry  
leads one naturally to think that there is something specially  
rotten in the surroundings of the industry itself. And that, we  
believe, is the real explanation of the position. We are suffer-  
ing in the iron and steel trades, and in all the many branches of  
the metal industry which they affect, from a discrepancy  
between the cost of production and the price at which consumers



are willing to buy the products. This is not the fault of the iron and steel masters or of the iron and steel workers, who have loyally submitted to the reduction of their wages in accordance with the downward fluctuations of the market. Our metallurgists are hampered, as they have been ever since the "spurt" of 1889, by the abnormally high cost of fuel. This important material of production has been kept at an inflated level by means of the labour manipulations, of which we had a bitter experience last autumn. While the collier is working for a "living wage" the industries upon which he depends for an existence are growing weaker and weaker to combat the cheaper labour of other countries. The iron and steel trades of Germany are in nothing like the depressed state which attaches to those of this country. While ironworks are being closed in England, Egyptian and South African orders for railway material are going to Germany and Belgium, and even Indian business is finding its way to the Continental mills. It is very clear that under these conditions the fuel question will have to be fought over again. There is not so much reason for hoping that the colliers will accept a fair compromise which would put our mill and forge proprietors in a position to fight on equal terms for the trade of the world, and until they do so the prospect of iron and steel and their dependent interests must remain gloomy in the extreme. Before long, no doubt, we shall see the present cheapness of money produce a wide extension of railway building in all parts of the world, but our metallurgists will get little good out of this unless they can sell as cheaply as their foreign competitors. A good deal of hope is based upon the coming relaxation of the American tariff, but we doubt very much whether any judicious estimate of its effects can be a hopeful one. Shrewd observers have long since recognised that with the increase in the metallurgical production of the United States, prices are sinking below the level at which British iron and steel can compete with them. The present depression in the American iron and steel trades is nearly as deep as that in our own. Last year there was a falling off of some nine millions sterling, or over 30 per cent., in the value of the pig iron output of the United States, as compared with 1892. Obviously, therefore, we shall have to compete very keenly for any iron and steel business in the United States, even under a liberally reduced tariff, and the benefit we may gain from a few American orders may be more than counterbalanced by the increased competition of American metal goods in neutral markets. It seems very evident that coal prices must go down if we are to see any revival in the iron and steel industries within a reasonable period. In the course of time the pay and working hours of miners on the Continent will no doubt be brought to assimilate with those of the colliers in this country, but we cannot afford to lose our foreign trade while this process takes place. Judging from recent experience, it looks as if a "boom" in the railway construction abroad would benefit German and Belgian metallurgy far more than it would ourselves.

## NOTES AND COMMENTS.

OWING to the increasing verbal evidence that has reached us during the week respecting the mineral wealth of the Philippines, all of which has tended to refute the pessimistical report of Consul Stigand, we have taken the trouble to carefully examine the same, and have convinced ourselves that the statements of the Consul are not consistent with the real facts of the case. Rather than being so impoverished, the Philippine Islands appear to contain a vast amount of wealth, which, by the aid of modern machinery, can be extracted profitably. We cannot really understand, from what we have heard and from what we have seen, how Consul Stigand came to write so gloomy a report, and how he so over-estimated the poverty of the country. He has not exaggerated, however, the defective means employed in extracting and treating the minerals. The native methods are deplorably primitive and inadequate. But this has been greatly remedied since the Philippines Syndicate sent over modern machinery a short time ago. As this is the principal company working in the islands—indeed, the only one we know of—we have been to the office, and have been courteously allowed to examine documentary evidence for the purpose of aiding to form our opinions respecting the wealth of the country. This further tended to convince us that Consul Stigand is wrong. We shall have pleasure next week in laying before our readers a longer article dealing more particularly with this syndicate.

THE report from the superintendent of the Alaska Treadwell Gold Mining Company has just come to hand, and is very satisfactory. The record of work done is sufficient to show that the operations at the mines have been carried on with energy and vigour. During the year 220,043 tons of ore have been mined at an average cost of 60 cents per ton, while the development works have extended to 1607 feet, all in payable ore. About 100 samples, taken promiscuously from the pile of ore, were subjected to assay, and yielded an average value of \$4.21 per ton. Altogether, the reserves estimated to be in sight make a total of 2,200,000 tons, a statement in keeping with the rest of the report. The mill and the chlorination works have operated with little hindrance during the year, and are now in good working order. Turning to the balance-sheet accompanying the report, a document of equal, if not greater, importance, we find that the profit for the year has amounted to \$429,948, or an average of \$1.95 per ton of ore treated. Thus it will be seen from a mere narration of these simple facts that the company continues in a thriving position, and, to all appearances, will not lose it for some time to come.

THE difficult nature of the ore in the mines of the Barret Gold Mining Company has hitherto been a big obstacle in the way of the directors, and had it not been for a timely recourse to the cyanide method, as the Chairman remarked at Tuesday's meeting, the company might have had to suspend operations. Just at the crucial moment, however, the process was adopted, with the result that the income of the company comes now within a comparatively easy distance of the expenditure. With the doubling of the plant, the directors hope to increase the amount of gold obtained, without a corresponding increase in the expenses, and so not only to fill up the gap between profit and loss, but also to overshoot the balance sufficiently to pay dividends. Already a cyanide process—though not worked upon the large scale eventually contemplated—has been in operation, and the results attained were encouraging and satisfactory, though the effort made was only a tentative one. From this fact it would seem that the hopes of the directors had a substantial foundation in past experience. Meanwhile the working expenses have been materially reduced, a further reduction being confidently predicted for the future.

THE mails from South Africa bring a report of the annual meeting of the shareholders in Moodie's Gold Mining Company. The profits for the past year are not large in amount, but it should be remembered that they can hardly be taken as anything like a fair criterion of what the company's property can do, seeing that the whole of the plant, contemplated as necessary by the directors, has not yet been completed. When the electrical apparatus for the transmission of power from Queen's River to the mines is finished, it is confidently hoped that the fortunes of the claimholders and the company will be revolutionised. "As soon as the plant is got to work," remarked the Chairman, "an impetus will be given to the property which will amply recoup it for all expenses." This is a pregnant remark, coming from the Chairman of a board controlling 80,000 acres of land, with a capital of £100,000. For the present the directors are calling up the remaining capital of the company, which, it is expected, will realise £30,000. Thus all the shares will be fully paid, and the dividends will be declared at the rate per cent., and not per share. The board are evidently very sanguine as to the future.

FROM all accounts the shareholders of the Mysore Reefs Gold Mining Company have little reason to be dissatisfied with the purchase of the Valley property, which property, it will be remembered, they commissioned the directors to acquire last year. Up to the present moment anticipations have been fulfilled, and the results of a year's working are distinctly promising. We are glad, for the shareholders' sake, that something tangible is at last being produced. We do not desire, however, to be too sanguine. There have been too many instances in which mines, have, at first, given brilliant results, which were unfortunately only of a temporary character. It must be said in favour of the Valley property that it was acquired only after minute examination by a trusty and skilful expert, whose opinion has never been given incautiously. The annual report of the directors of the Mysore Reefs Company, to be presented at the meeting next Wednesday, has just been issued, and gives details of the satisfactory working of this new property. We are told that operations have been solely confined to the latter. Two shafts have been sunk, named respectively, "Underlie shaft" and "Vertical shaft." The results from the operations in both are, we are assured, highly satisfactory, and when we examine the evidence in support of this opinion, it receives our entire confirmation. An assay in one case of 3 ounces 3 dwts., and in the other of 1 ounce 11 dwts. 10 grains, is something to be proud of.

MAJOR COTTON's agitation against the directors of the South African Trust and Finance Company comes with a bad grace under present circumstances. It is difficult not to connect his attitude at Wednesday's meeting of the shareholders with the result of the recent ballot for directors' seats by which his own was abolished. How can it be taken that if the board had been guilty of the irregularities the Major would attribute to them, no responsibility attaches to the Major himself, and that he should at the last general meeting have moved the re-election of three of the board in terms of almost ecstatic commendation? This eulogy was pronounced in April; we are now in July; what has happened in the meantime to work such a radical change in the Major's opinions? There is nothing singular in the fact that the proposal for a committee should have received some considerable support. Mr. Concannon hit the nail on the head when he said that such allegations, coming from such a quarter, carried at first sight a good deal of weight. The direct upshot of them was, in fact, that a sort of informal committee sat to investigate, which declared itself with almost unanimity to be satisfied with the present management of the company. To the shareholders assembled in meeting, who were at first unaware of what had been done, Major Cotton's confidently-toned indictment must at first have appeared singularly forceful. It was only after hearing both sides that the proposal for a committee was rejected by a large majority.

THE proceedings at the meeting were characterised by a good deal of humour. From all parts of the great hall there came mingled notes of approval, sarcasm, and indignation. One lady shareholder, whose investment had, perhaps, hardly turned out so well as her sanguine feminine temperament had led her to hope, bubbled over with unreasoned indignation against the board; and as she interpolated sarcasms into the Chairman's defence, and cheered the gallant major's terrific onslaught, the short-hand writers found their stenography becoming fearful in its illegibility. But the crisis came upon the division, when the "noes" passed to one side of the room, and the "ayes" to the other. Only a small table, 3 feet across, divided the glowering hosts. One opponent or

supporter of the motion—we forget which—found himself surrounded by a knot of friends who disagreed with him, and partly by persuasion, and partly by force, felt himself slowly moving towards the enemy's quarter. Numbers declared, Mr. Concannon wanted to know—"whether Major Cotton intended to add insult to injury by demanding a poll?" The answer being given that Major Cotton did so intend to follow up one error by another, the hostile parties merged into one tumultuous throng that moved slowly out at the door.

THE proceedings at Thursday's meeting of the shareholders in the Sheba Gold Mining Company were rather more unanimous than those of the company who assembled in the Great Hall of the Cannon-street Hotel on the previous day. Mr. Soper, among other things, knows well how to manage a meeting, and the differences, which might have become sharply defined, as to the magnitude and composition of the directorate, were smoothed into a friendly interchange of careless preferences. The hypothesis that the board of a company ought to bear some vague proportion to the magnitude of the ownership, is one that requires a long and detailed examination before its beauties become fully apparent. Improved Articles of Association might run something like this—of course, we only suggest—"For every 100 acres owned by the company, there shall be one shareholder elected to the directorate, provided always that the number shall not be more than 50, nor fewer than one." The discussion of the proposal seemed to put the meeting into a bad humour, for they negatived every proposal put before them but a vote of thanks to the Chairman. So that a poll will have to be taken.

THE Board of Trade Returns for July are not very satisfactory, and as regards exports are disappointing. The imports show a considerable advance, the exports a decline. The former are valued at £34,250,033, an increase of £2,380,441, or 7.4 per cent., and the exports at £17,909,155, a decrease of £876,116, or 4.6 per cent. The exports of foreign and colonial merchandise are, on the other hand, £402,165 more than last year, being valued at £5,198,180. As regards the imports, there are only two classes of goods which exhibit a decrease, and these are articles of food and drink liable to duty, and raw materials for textile manufacture. More of iron ore, chiefly from Spain, was landed, and there are also increases in tin and unwrought copper. More of coal was sent away, and at higher prices, Italy and Egypt, in particular, taking more. The shipments of steam machinery to Russia, other than locomotive and agricultural, were valued at £62,989, compared with £13,582. As regards iron and steel, the decrease was 36,107 tons, and, except pig and steel unwrought, there was a decline in all kinds, tin plates and railroad being most conspicuous in this respect. Copper, too, was less by 44,020 cwt. in quantity, and £122,907 in value.

WE are glad to see that the *Miner*, that spirited paper of British Columbia, is advocating the provision of public drills by the Government. We have always advocated Government aid towards the advancement of the mining industry, in whatever country and in whatever manner. Not the least effective way is the purchase and letting out for a reasonable sum of diamond drills. This wise policy has been carried out in many countries to excellent purpose, and the Government of British Columbia would do well to follow the example. No loss could possibly be the result of such a policy; indeed, gain alone could be expected with certainty. Speaking on this very point, the *Miner* says:—"In the Kootenay the Government might establish one or two drills, under the care of the Gold Commissioner, to be let out to individuals at a rate of hire sufficient to pay interest on the cost of investment, proper security being given for its safe return. It is possible that it might be advisable for a man skilled in its use to accompany the drill, and his wages would have to be paid by the borrower. Under an arrangement of this kind the Government, though it would be put to some little expense at first, would find it a good investment, and to the public it would be of the greatest advantage. Prospects could be proved and the direction of future development on claims determined." We shall expect to see a move made in this direction before long.

THE report of the Mining Department of Selangor for 1893 states that last year has been a prosperous mining year for the State. The output of tin has exceeded expectations, and miners generally have done well. The export of tin and tin ore reached 281,759 piculs against 208,164 in 1892. The duty collected last year amounted to \$1,081,842. The amount of tin ore which passed through the hands of the Straits Trading Company in the year was piculs 103,435, as compared with piculs 81,862 in 1892. The report mentions that the Malay States Tin Mining Company of Kuchai and Ayer Etam, under the management of Mr. Aone, has done good work. At Kuchai, seven bangaals are built and two engines are at work. From the bottom of a mine, from which karang had been obtained, a shaft was sunk to a depth of 45 feet, and good tin ore was found. In the manager's opinion, the ore found points to the probability of his having struck a lode, and he intends to tunnel and prospect. Communication between Kuchai and Ayer Etam is extremely difficult; the two places are some miles apart and joined by a jungle track; whilst there is difficulty in getting mining coolies to stop at Ayer Etam. The company's output for the year is 1814 piculs, as against 1389 for 1892.

THE report also calls attention to the fact that the mines at Sungei Besi have been well worked during the year. About 10 miles from Kuala Lumpur the ore has proved wonderfully rich, three deposits having been found at different depths. The mines are now down to a depth of about 60 feet. Particulars are given of other rich finds. For instance, the hills to the north of Oheras Road at a distance of 4½ miles from Kuala Lumpur have been found to contain good tin. A company has



been formed to whom 100 acres of mining lands have been granted. In the Sungai Bulu Mukim, rich ore was obtained at a depth of 3 feet to 4 feet from the surface of the ground. Land in the locality is being rapidly applied for. Although Sungai Bulu is one of the largest mukims in the Kuala Lumpur district, but little of its area had previously been taken up by miners. Improvement is noted in the sanitary condition of mining lands, and Government has enforced control over mining engines. The licensing of smelting houses is under consideration. The report notices that it was thought advisable to prohibit mining in the neighbourhood of the coffee estates, and the miners at work in these localities were evicted from their holdings.

## OUR CITY ARTICLE.

FRIDAY EVENING.

### THE MINING MARKET.

**A dull beginning, but an active close.—An easy carry-over.—Indians steadier.—Activity in Lands and Diamonds.**

**B**ETWEEN the opening and close of the past week there was all the difference separating the apprehension which always precedes a carry-over from the confidence engendered by the knowledge that it has been satisfactorily concluded. At the commencement all was depression; but the present appearance of the market is hopeful. Things were in a decidedly bad way on Monday. The gloom was more pronounced than we remember to have known for some time, due, however, to no more solid causes than a general feeling of apprehension, generated partly by the unfavourable affection of Jagers, and partly by the nervousness usually preceding the settlement. Gold and Land shares fell sympathetically with the diamond securities, and, in fact, the weakness embraced every section of the market. Almost the only exceptions to the general fall were rises in Champion Reef, Wests, and Wynaads. The Indian section, in fact, despite some declines, monopolised nearly the whole strength of the market. The apprehensions entertained as to the carry-over proved to be utterly groundless, and the new account was opened with a decidedly more hopeful and promising characteristic. Compared with the last making-up, prices were generally lower in evidence of the depression which has latterly effected the market. Diamond shares exhibited the most severe tumble, both De Beers and Jagers being considerably down. The improvements were distinctly fewer, Worcester, Kleinfontein, and Champ d'Or being almost the only noteworthy instances of betterment. No great disposition was manifested for business on the new account. The markets were, however, in a much more satisfactory condition, and the declines were arrested. The Indian market was especially prominent in its improvement after the carry-over. Ooregums became firmer, and several of the other Indian shares hardened in sympathy. The hopeful tendency spread throughout Wednesday, and during the day communicated itself to every branch of the market. Kaffir shares rose almost *en masse*. Transactions occurred in all the more popular of the gold shares, where in the vast majority of the cases rises were recorded. Gold Fields, for instance, hardened to 2½ buyers, while the debentures rallied well. Land shares renewed their strength, an improvement of 1s. occurring in Chartered. But it was in diamonds, which are so often out of sympathy with the rest of the market, that the better state of things was peculiarly manifested. Paris support sent up De Beers to 15½, while Jagersfontein rose ½ to 12½. The Indian market, where the symptoms of improvement were early exhibited, continued on Wednesday to harden. The altered condition of business was not marked by any display of extraordinary activity, but rather by a generally steadier characteristic. In other directions of the miscellaneous market the declines were not altogether arrested. Rio Tinto went down ½. The further progress and conclusion of the settlement being marked by no unsatisfactory occurrences, the Mining Market continued to exhibit favourable characteristics throughout Thursday. Enquiries were made for shares in all directions, and the prices were harder, and promised to become more so. Rises were general all along the line in land shares, diamonds, and Indians. In the latter department the offerings were few, and the enquiries general. The contrast, in fact, in all departments of the market, of the prevailing activity, with the preceding dulness, was most marked. Appearances at the close of the week are very encouraging.

#### British Mines.

The continued weakness in tin has had a depressing effect upon the Cornish Market, and prices generally are lower. The loss (£1528) shown at the Dolcoath meeting was certainly heavy. The effect of the late run, combined with the low prices obtained for the ore sold, telling seriously on the returns. Now, however, that the worst of the trouble in the shaft has been got over, a much better state of things may soon be expected, as the rich ground has only to be again reached for the good returns to be resumed. The Killfret meeting was very satisfactory, and a dividend of 2s. per share was declared.—Risen: None.—Fallen: Blue Hills, 2s. 6d.; Carn Brea, 20s.; Cook's Kitchen, 7s. 6d.; Dolcoath, £210s.; East Pool, 10s.; South Crofty, 12s. 6d.; Tincroft, 6s.; Wheal Agar, 2s. 6d.; Wheal Bassett, 7s. 6d.; Wheal Friendly, 3s.; and Wheal Grenville, 10s.

#### South African Shares.

At the commencement of the week the South African section of the Mining Market was affected by a worse state of depression than any which has prevailed for a long time past. This weakness was very generally referred to the sharp fall in Jagersfontein, consequent upon the unsatisfactory report, and also to the nervous apprehension with which the approaching settlement was regarded. Jagers closed ½ weaker at 12½. De Beers also fell ½ to 15½. Land shares were deeply affected by the prevailing gloom, both Chartered and Bechs undergoing some considerable reduction. Explorings, Zambesias, Oceana, Consolidated Gold Fields, and Exploration left off something to the worse. The sharpest falls in the gold section took place in Rand Mines and Wemmer, both of which relapsed ½, the former to 8½, and the latter to 4½. Elsewhere the weakness was pronounced. City and Suburban receded to the extent of ½ to 13½, and losses of about ½ occurred in Crown Reef, Durban-Rodepoort, Ferreira, Geldenhuis Estate, Heriot, Jumpers, Meyer and Charlton, New Chimes, New Rietfontein, Pioneer, and Wolhuter. George and May were down to 20s., Glencairn to 32s., Knight to 20s. 3d., Luipaard's Vlei (fully paid) to 8s. 6d., Sheba to 27s. 3d., Paarl Central to 20s., and Randfontein to 14s. 3d. As might have been predicted, the disturbing apprehensions with regard to the carry-over were not realised, and everything passed off smoothly enough, an improvement in prices immediately following. Rates ruled easy. Chartered

were done at 1d., De Beers from 3d. to 9d., and Jagers at about 6 per cent., while gold fields ruled from 3 to 6 per cent., and gold shares from 7½ to 10 per cent. As compared with the last making-up, there was a general decline. Among the more pronounced instances of this were the falls of 1½ in Jagers, ½ in De Beers, 1½ in Exploring, ½ in Cities and Wemmers, ½ in Rand Mines and Villages, ½ in Robinsons, ½ in Crowns, Durban, Simmers, Wolhuters, and Zambesias, 4s. 4½d. in Chartered, and 2s. 6d. in Bechs. On the contrary, Worcester, Kleinfontein, and Champ d'Or exhibited slight improvements. There was no great disposition to transact business on the new account, and the market, though distinctly better in tone, did not altogether shake off the gloominess of the last week. Chartered eventually closed at 26s., and Bechs. hardened to 25s. 9d. Oceana rose ½ on the day. Heriots were enquired for on the better yield reported yesterday, and revived to 4½. Meyer and Charlton rallied to 5½, Robinson to 6½, Jubilee to 5½, Wolhuter to 2½, Rand Mines to 8½, Wemmer to 4½, and there were also slight improvements in Jumpers, Cressus, Knight, Luipaard's Vlei, United Rodepoort, and Sheba. Wednesday brought with it a much more satisfactory state of affairs in the South African market. The wholly satisfactory nature of the settlement has brought about a renewal of general confidence, and the result was a brisk demand for many of the shares. In nearly all the more popular among the gold shares rises were recorded. Robinsons revived to 6½, Cities to 13½, Geldenhuis Estate to 4½. Heriot to 4½, Champ d'Or to 1½, Jubilee to 5½, Jumpers to over 4½, Langlaagte to 4½, Henry Nourse to 2½, Knight to 1½, and Geldenhuis Deep were also firmer. On the contrary, Ferreira and Simmers were flat, whilst declines also occurred in Crowns, Chimes, Salisbury, Cressus, Glencairn, Luipaard's Vlei, Sheba, and Buffelsdoorn. Wentworth Priority were offered at under 10s. Land and Diamond shares were fully in keeping with the prevailing improvement. Chartered rose a shilling during the day, and closed at 27s. Bechs. continued weak, the amalgamation scheme being unfavourably regarded. The rally in Diamonds was very noticeable. De Beers were dealt in at 15½, while Jagers rose to 12½. No unpleasant occurrences marred the ease with which the settlement was concluded, the market on Thursday morning was perceptibly better in condition. The activity spread throughout every section. Especially in South African Gold shares business was brisk; but the movements were generally of a very undecided character. Durban and Cities showed a reviving tendency, but Crowns relapsed to 8s. Ferreira rallied to 7½. Nigels rose the amount of the dividend—3s. United Rodepoort rallied to 2½, and there were also improvements in Jubilee, Heriot, Henry Nourse, Randfontein, Villages, Champ d'Or Deep, and Gold Fields of Mashonaland. Conspicuous flatness was shown by Primroses, Rietfontein, Simmers, and Modderfontein, and May Consolidated, Kn ght, and Robinson were somewhat weaker. The announcement at the meeting that another year would elapse before the new battery were started exerted a depressing influence upon Shebas. In Land shares the principle feature was a demand for Chartered, which were bid up to 27s. 9d. in the street. Bechs, on the contrary, remained flat. The chief rise in diamonds occurred in Jagers, which advanced to 12½. De Beers improved the turn. During the day the South African market has exhibited but little departure from the conditions which have affected it since the carry-over. There has been no great display of activity, but matters were better than they were last week. Chartered continued to improve. Diamond and gold shares have recorded no considerable movements, but present indications distinctly promise a revival for the future. Risen: Bantjes, 1s. 6d.; Champ d'Or Deep, 6d.; Henry Nourse, 2s. 6d.; Jubilee, 5s.; Klerksdorp, 6d.; Nigel, 1s. 9d., allow div.; South African Land (15s. paid) 6d.; ditto fully paid 6d.; Spitzkop, 3d.; Stanhope, 1s. 3d.; South Reef, 3d.; Transvaal Land (15s. paid) 6d.; ditto, fully paid, 3d.; United Rodepoort, 1s. 3d.; Witwatersand Knight's, 2s.; Worcester, 1s. 3d.—Fallen: African Gold Recovery, 1s. 3d.; Afrikander, 1s. 3d.; Aurora, 2s.; ditto West, 1s.; Bechuanaland, 3s.; Buffelsdoorn, 2s.; Bultfontein Consolidated, 3d., allow div.; Central Zouts, 3d.; Champ d'Or, 2s. 6d.; Chartered, 1s.; Consolidated Deep, 2s. 6d.; City and Suburban, 5s.; Crown, 5s.; De Beers, 10s., allow div.; Exploration, 7s. 6d.; Exploring, 2s. 6d.; Ferreira, 5s.; Geldenhuis Main Reef, 6d.; George and May, 1s. 3d.; Glencairn, 2s. 6d.; Gold Fields of Mashonaland, 2s. 6d.; Graskop, 3d.; Griqua land West, 1s., allow div.; Johannesburg Pioneer, 2s. 6d.; Kleinfontein, 2s. 6d.; Lisbon, 3d.; Luipaard's Vlei, 1s.; Mashonaland Agency, 1s. 3d.; May Consolidated, 1s.; ditto Deep, 6d.; Meyer and Charlton, 5s., allow div.; Modderfontein, 1s.; Moodie, 6d.; New Belgium, 6d.; New Chimes, 4s. 3d., allow div.; New Cressus, 1s. 3d.; ditto Primrose, 2s. 6d.; New Jagers, 25s.; New Transvaal Lands, 1s.; Oceana, 1s. 3d.; Paarl Central, 1s.; Pig's Peak, 6d.; Rand Mines, 5s.; Rietfontein, 5s.; Salisbury, 2s. 6d.; Sheba, 1s. 6d.; Silati, 3d.; Simmer and Jack, 10s.; South Simmer and Jack, 1s. 3d.; St. Augustine, 3d.; Transvaal Estate, 6d.; United Langlaagte, 1s. 3d.; Village, 7s. 6d.; Wemmer, 5s.; Wolhuter, 2s. 6d.

#### Indian and Miscellaneous Shares.

Something not far removed from a panic occurred in the Indian and Miscellaneous Market on Monday. Shares were thrown wholesale upon the market, without any apparent reason. Considering the general aspect of the market, the firmness of some of the Indian shares was surprisingly maintained. Champion Reef, Wests, and Wynaads were actually better on the day. On the other hand Ooregums, and Gold Fields of Mysore were distinctly easier. Losses also occurred in Aladdins, Broken Hill Proprietary, and Poorman. The carry over in the miscellaneous market was easily and smoothly effected, and a healthier tone immediately supervened. Ooregums hardened, the sellings being arrested, and a disposition to buy manifesting itself. In sympathy a sharp recovery occurred in Wests, Wynaads, South-East Mysore, and Kempinkotes. There were few changes worthy of being recorded in other branches of the market, the declines in Wentworth Priority and Mosman being but trifling in extent. Throughout Wednesday the Miscellaneous Market remained much steadier, and the prospect became considerably more hopeful. Ooregums were unchanged, but enquiries for them were more persistent. Mysore Gold and Champion Reef rose ½, but Mysore Reefs were freely offered, and closed at 13s. 9d. in the street. A similar effect was also produced upon Mysore West, which declined 9d. to 7s. 9d., and upon South-East Mysore, which lost 6d., at 5s. In other directions the improvement was not so noticeable. Colombian Hydraulic were slightly worse at 12s. 6d., while Broken Hill Props fell to 51s. Montana improved 1s., to 13s. 9d., and British Broken Hill, Day Dawn Block, Don Pedro, Kapanga, and Kempinkote were a trifle better. Rio Tinto fell ½ to 13, but Namaqua gained ½ to 15s. The condition of the Miscellaneous Market continued to improve on Thursday, the demand for shares being in most instances good and steady. The Indian market was one of the brightest sections, the renewed strength of the last few days being fully maintained. In nearly all instances there was an improvement. There were recoveries of ½ in Ooregum Ordinary, Champion Reef, and Mysore Gold; but Nundydroog weakened to the extent of 1-32. Nine Reefs advanced a trifle, but Balaghat and Mysore West were a little easier. Elsewhere in the Miscellaneous Market prices were not quite so favourable. Mount Morgan, Poorman, and Harqahala were offered at small declines. No conspic-

uous changes have taken place to-day in the Miscellaneous Market. Indian shares remain firm. Elsewhere, however, the movement has made rather for relapse than rally. Rise: Aladdins, 1s. 3d.; Brilliant Block, 1s. 3d.; ditto, St. George, 1s.; Champion Reef, 3s. 9d.; Don Pedro, 6d.; Elkhorn, 6d.; Golden Feather, 6d.; Harqahala, 6d.; Jay Hawk, 6d.; Montana, 1s. 9d.; Mount Morgan, 1s. 9d., allow div.; Mysore, 1s. 3d.; Mysore West, 3d.; ditto Wynaad, 3d.; Namaqua, 2s. 6d.; New Guston, 1s.; Tharsis, 2s. 6d.—Fall: American Belle, 6d.; Balaghat, 6d.; Bayley's Reward, 6d.; Brilliant, 1s.; Broken Hill Prop., 2s. 6d.; Burma Ruby, 1s.; Colombian Hydraulic, 1s. 6d.; Coromandel, 6d.; Cravens, 3d.; Day Dawn, 3d.; Gold Fields of Mysore, 6d.; Kabonga, 3d.; Kapanga, 3d.; Mills' Day Dawn, 9d., allow div.; Mysore Reef, 2s. 6d.; Nundydroog, 1s. 3d.; Ooregum, 3s. 9d.; ditto Pref., 6s. 3d.; Poorman, 3s.; Richmond, 1s.; Rio Tinto, 1s. 3d.; Ripanji, 2s.; South-East Mysore, 9d.; Springdale, 3d.; Victory, 1s.; Wentworth Priority, 2s.; ditto Ordinary, 6d.; West Argentine, 3d.

#### STOCK EXCHANGE SETTLING DAYS.

Consols, Wednesday, August 1.

STOCKS AND SHARES.

Continuation Days.	Ticket Days.	Pay Days.
Wednesday, July 25	Thursday, July 26	Friday, July 27
Monday, August 13	Tuesday, August 14	Wednesday, Aug. 15
Tuesday, August 28	Wednesday, Aug. 29	Thursday, Aug. 30

## COMPANY FINANCE.

**Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.**

#### The Holcomb Valley Company.

The directors' report, to be presented at the second ordinary general meeting of shareholders, on Wednesday, says:—Mr. W. E. Pedley, manager of the company, arrived in San Francisco, California, at the beginning of May, 1893, and ordered the steam shovel, amalgamator, and other machinery requisite for the purpose of developing the company's property. Owing to the unsettled condition of business in the United States, it was found impossible to induce manufacturers to bind themselves to deliver by any specified date, and although it was expected that the machinery would be erected on the property ready for the commencement of work by about the end of June, it was not before the end of November that everything was ready. Before anything more than a few preliminary trials had been made with the machinery, winter set in with unusual severity, and work was suspended, the engine men not being able to stand the severe cold at night without the protection of the sheds, which were not then completed. Until actual results had been obtained from the shovel with the existing pumping plant, the board thought it desirable to risk as little capital as possible. The present pumping plant is sufficient to supply water for from 4 to 6 hours' work per day, and consists of a No. 8 Blake pump belonging to this company, and two small Worthington pumps hired from a neighbouring property. There is also a small Knowles pump, bought with the boiler for \$150, but not yet put into efficient working order. The shovel, therefore, was hired, with a five months' option of purchase, rent being reckoned towards the purchase price. This option the directors have since exercised. The remaining parts of the plant it was impossible to hire, and they were accordingly purchased. The result of the few hours' work done in the month of December was to excavate 392 cubic yards of gravel, with a gross result of £45, equivalent to, as nearly as possible, 2s. 5d. per cubic yard. Although it does not, strictly speaking, fall within the period covered by this report, the shareholders will naturally desire to know the results of the workings during the present year. The protracted and quite unusual severity of the winter prevented the resumption of work until the 14th April. From that time to the 10th June, say 56 days, work was carried on, but, owing to difficulties arising from the configuration of the ground, and to a number of modifications in the machinery, numerous unexpected and vexatious delays took place, and, as a result, up to the 10th of June, only 70 hours' actual working was found possible. In these 70 hours, as nearly as possible, 2000 cubic yards of gravel were treated, showing a daily average of about 40 cubic yards, but it is satisfactory to note that during the latter part of this period of eight weeks, the average daily return rose gradually to about 120 cubic yards. The value of the gold in the amalgam, according to Mr. Pedley, was about 45 cents, say 1s. 10½d., per cubic yard of gravel. The loss in the tailings was about 11 cents, say 5½d. This loss is regrettable, but can be avoided, and efforts are now being made to secure the full value of the gravel. In addition to the free gold, Mr. Pedley believes that he has discovered in the black sand, which up till now has been allowed to run to waste, a possible source of considerable profit. Analyses of this have been made in London and California. Mr. Pedley believes that the value of the black sand in the gravel amounts to 40 cents, say 1s. 8d., per cubic yard, in addition to the value of the free gold, and while the analyses of the London assayers are less favourable, they show that it is well worth preserving, and likely to add materially to the profits of the company. The results of the working above described have, in the opinion of your directors, shown that the machinery is capable of doing what was claimed for it: that the value of the gravel is sufficient to give a satisfactory return on the capital invested, and that an adequate supply of water is available for the purpose of working. The present pumping plant, however, is inadequate, and to obtain the full results originally estimated it will be necessary to augment it. The cost of so doing, together with the necessary connections, buildings, pipe-lines, &c., was originally estimated at £1000. All expenditures, other than the actual purchase of the pumps, have been incurred, and amounts (as shown by the accounts) to the sum of \$2500, say £500. It is proposed to purchase the additional pumps forthwith. Should the result of the increased daily working (rendered possible by the further pumping power) be satisfactory, your board proposes to purchase a second machine. The cost of this will be about £2000. This will also necessitate an increase in the existing accommodation for workmen and some other incidental expenses.

#### The Mysore Reefs Gold Mining Company.

Report of the directors up to the 31st of March, 1894, states that the net expenditure in India and England for the 15 months under review amounted to £345 18s. 9d. The report of Captain Scantlebury, the superintendent, is a record of energetic and successful mining, reflecting great credit upon him and his staff. Mining operations are now solely confined to the newly acquired valley property. Two shafts have been sunk, named respectively underlie shaft and vertical shaft. The results from the operations in both are highly satisfactory, particularly so at vertical shaft. Here at the depth of 200 feet a lode is being driven upon, and at the date of Captain Scantlebury's report in the level north of the crosscut, it was 2 feet 6 inches in width, of an average assay value of 3 ounces 3 dwts. of gold to the ton; and south of the crosscut the lode was 1 foot 7 inches wide, of an average assay value of 1 ounce 11 dwts. 10 grains of gold per ton. A section of good ore ground is being opened up between the two shafts and will shortly be available for stoping. The latest report from the mine received on the 2nd inst. shows an improvement in the value of the lode. It reads as follows:—"250 feet Level North of Underlie Shaft. Width of lode 3 feet; assay value 19 dwts. 9 grains per ton.—200 feet Level North of Vertical Shaft. Width of lode 1 foot 9 inches; assay value 4 ounces 3 dwts. 2 grains per ton.—200 feet South of Vertical Shaft. Width of lode 2 feet; assay value 3 ounces 5 dwts. 22 grains per ton." The superintendent has been busily engaged removing the stamps from the old mine, and erecting them on the new property. They consist of a battery of 20 heads



and according to a cablegram just received, the first 10 heads were started on the 4th inst. Regular returns of gold may now be expected. The directors congratulate the shareholders on the acquisition of the valley property, which presents every prospect of being of very great value.

### Crown Reef Gold Mining Company.

The accounts for the year to March 31 show a net profit of £22,253, after writing off £24,962 for depreciation and £8094 for mine development redemption. Including £32,044 brought forward from 1892-3, the accounts show an available balance of £114,297, of which £60,000 has been distributed in two dividends of 25 per cent. each, £6000 has been transferred to the dividend reserve fund, £3878 derived from tailings sold has been transferred to working capital account, and £44,418 remains to be carried forward. The profits of the previous year were £10,900 less. As regards amount expended in excess of the capital provided, the directors hope to be able to pay it off out of the profits, without interfering with the regular dividends of 50 per cent. per annum, and they expect to relieve the company from debt during the course of the coming financial year. This policy is recommended in place of issuing debentures, and when the debt has been liquidated the whole of the profits will be available for distribution. A sum of £191,000 has been expended on capital account during the past year.

### The Southern Land Company.

The following circular has been sent to the shareholders in this company:—"The extraordinary meeting of the shareholders of this company to be held on Thursday, the 19th inst., has been called to consider an important proposal—that a new company should be formed to acquire the undertakings and assets of this company, those of the Bechuanaland Exploration Company (Limited), those of the United African Syndicate (Limited), and certain interests belonging to Messrs. Mosenthal, Sons, and Co. During the last few years attention has been frequently drawn to the advantages that would accrue from the amalgamation of land and other companies carrying on business in South Africa, and your directors, after giving the present proposal their very careful consideration, have no hesitation in recommending its adoption, as they believe it will materially reduce the cost of management, and at the same time place the company in a strong financial position. The new company, which it is proposed to register under the title of the Bechuanaland and United African Company (Limited) will have a nominal capital of £500,000 in 500,000 shares of £1 each, of which 350,000 shares will be issued to the three companies and Messrs. Mosenthal, Sons, and Co. in payment for these various undertakings. The remaining 150,000 shares will be held in reserve to provide further capital whenever required. The draft agreement for carrying out this amalgamation, which will be submitted to the shareholders at the meeting to be held on the 19th inst., provides that this company shall receive for its undertaking £75,000 in 75,000 fully paid up shares, and these will be distributed among the shareholders in this company." A circular in similar terms has been sent to the shareholders in the UNITED AFRICAN SYNDICATE (LIMITED), and the BECHUANALAND EXPLORATION COMPANY to whom and to Messrs. Mosenthal, Sons and Co., the balance of the £350,000 of capital goes.

— Payment is announced on July 23 of a dividend of 6d. per share in MILL'S DAY DAWN UNITED GOLD MINES COMPANY (LIMITED).

— The directors of the HARQUAHALA GOLD MINING COMPANY (LIMITED) have declared a dividend of 9d. per share, tax free, for the quarter ending June 30, making a total distribution for the year of 2s. per share, or 10 per cent.

— The POLLOCK PATENT GOLD EXTRACTING COMPANY'S works, situated near the Knight's property, Witwatersrand, were totally destroyed by fire on the 15th ult. The loss is estimated at £15,000, while the buildings were insured for £10,000, the following fire offices being concerned:—London and Lancashire £5000, Commercial Union £4000, and South British £1000.

— The shareholders in the UNITED IYF REEF GOLD MINING COMPANY have duly agreed to the raising of the capital from £45,000 to £60,000. The offer of the Woodward-Walker battery water rights and claims for £2000 has been accepted, and the directors have been authorised to raise the necessary money pending the issue of further shares.

— The CHAMPION REEF GOLD MINING COMPANY OF INDIA (LIMITED) has sold the gold produced in May for £13,248 9s. 4d.

— The CORREUM GOLD MINING COMPANY OF INDIA (LIMITED) has sold the gold obtained in May for £24,954 5s. 7d.

— The BALAGHAT-MYSORE MINES (LIMITED) has sold the gold obtained during May last, realising £1935 4s. 2d.

— The MYSORE GOLD MINING COMPANY (LIMITED) has sold the gold obtained during May last, realising £16,063 14s. 5d.

— The NUNDYDROOG COMPANY (LIMITED) has sold the gold obtained during the month of May last, realising £6350 17s. 9d.

## MINING NOTES. HOME, COLONIAL, AND FOREIGN.

TELEGRAPHIC advices received from Johannesburg by the Union Steamship Company (Limited) state that the gold crushings on the Witwatersrand fields for the month of June were 165,162 ounces. One or more important contributors to the output has not been in full work owing to mining necessities. The following table, taken from the circular issued by the Mining Department of the South African Trust and Finance Company (Limited), gives the crushings to date.

	1889	1890	1891	1892	1893	1894
January	Ozs. dwt. 25,505 12	Ozs. dwt. 35,006 15	Ozs. dwt. 53,205 8	Ozs. dwt. 84,560 8	Ozs. dwt. 109,374 0	Ozs. dwt. 149,814 0
February	22,456 18	36,887 5	50,079 2	86,649 8	93,252 0	151,870 0
March	27,919 0	37,780 2	52,949 1	93,244 11	111,474 0	185,372 0
April	27,028 18	38,598 19	55,371 16	95,562 6	122,053 0	168,745 0
May	35,028 7	38,336 5	54,073 1	99,436 6	116,911 0	169,773 0
June	30,877 13	37,419 10	56,861 1	103,252 3	122,907 0	168,162 6
July	31,091 2	39,465 10	54,924 10	110,279 1	126,169 0	—
August	30,519 14	42,863 11	59,070 4	102,322 3	136,089 0	—
September	24,143 10	45,485 19	65,601 15	107,851 13	129,585 0	—
October	32,214 6	45,248 17	72,793 8	112,167 0	138,599 0	—
November	33,721 16	46,782 18	73,393 15	106,794 15	138,640 0	—
December	39,050 11	50,352 5	80,312 11	117,748 17	146,357 0	—
Total	369,557	5,404,817	0 1/2	729,237	1,210,868	1,478,473

The amount of gold produced in the year 1887 was 23,145 ounces 8 dwts. Complete monthly totals were not recorded in that year.

BUTTE, says the *Daily Inter Mountain*, is now producing about 7000 tons of copper ore per day, and silver mining would be equally active were it not for the attentive consideration of the party in power at Washington. The bi-metalism which the Cleveland platform promised has not arrived.

GREAT activity is apparent in all the gold camps of the State, and Montana will probably be in the van of all the States in the production of gold for the year.

CONSIDERABLE work is being done this year in the Lowlands, Montana, in washing out the rich earth in that section. This ground is about 1 1/2 miles north of the Ruby quartz claim. Mining men familiar with the gulches in the Lowlands believe that some day a ledge of very rich gold ore will be found there. They base this opinion on the croppings on the surface and the amount of rich float found around the gulches.

## THE EDITOR'S LETTER BOX.

We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, although these need not necessarily be published.

### CORNISH MINING.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—To arrest the decaying condition of Cornish mining, and to ensure the development of the various mineral sections in which the county abounds, the capitalist should be assisted and protected by liberal rules in granting concessions, which in return would bring capital and intelligence to utilise those neglected treasures buried within the many metalliferous hills. There is plenty of space for investments, and with the necessary care, knowledge, and proper management, Cornwall has yet before it a brilliant future. It is through the miner that Cornwall owes its success; they are a liberal people, and in every way pertaining to the industry deserve to be liberally met. In the case of East Pool Mine the terms for renewal of its lease show a lack of reciprocity between landlord and tenant so much needed in the interest of both, but too frequently interfered with by Liberal owners having Conservative stewards, thus rendering void the old adage that "the master's eye makes the ox fat." I am led to these remarks not in the interest of any particular mine, but of the county generally. Business is seeking new fields which have been neglected by capitalists and enterprising men, and without an effort to revive the grand old industry, the next generation will have nothing but tradition and disused shafts and steam engine houses to give an account of the former richness of the county. There are zones throughout the county equal in future yield to any yet wrought; enterprising people are afforded an opportunity, and invited on the principle of co-operation to join in the work, and to utilise those great resources of Nature for the benefit of himself and mankind in general, and compete in obtaining its wealth by the employment of all the elements which modern industry affords.—I am, Sir, yours faithfully,  
CHAS. BAWDEN,  
Poldice House, St. Day, Scorrier, Cornwall.

### MYSORE WEST GOLD COMPANY, LIMITED, AND MYSORE WYNAD CONSOLIDATED GOLD MINING COMPANY, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—In publishing my letter last week the word "except" was omitted by your printers.

Instead of "buyers do not exist for small numbers, such as 50 shares or so," my letter should have read, "Buyers do not exist except for small numbers, such as 50 shares or so."—I am,  
PRO BONO PUBLICO.

P.S.—The frequent and absurd telegrams and the crushings of a few tons of quartz (specially picked for the purpose) are additional and very significant proof of the extremely critical position, and of the desperate efforts that are being made to carry through this ill-advised and worse-planned reconstruction, and thus avert (or rather delay for a few months) a compulsory winding-up of these companies, which—in spite of all statements to the contrary and the frantic efforts to prevent it—seems immediately inevitable.

Thursday, July 12, 1894.

### SUTHERLAND REEF, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—I strongly advise all shareholders to attend the meeting next week, and, at the same time, to carefully inspect the company's registers, when they will see how heavily these worthless shares have been sold since the reconstruction. If any of them have any confidence in the company after doing so, and fail to sell their shares immediately, I shall be much surprised.

This company's funds will be exhausted by next January—perhaps even sooner—than another reconstruction! Many shares have been sold during the last week or two.

If asked, I do not think the directors will deny that an early reconstruction will be needful.

In spite of the "riggers" and circulars of touting "outside" brokers, I expect these shares to fall any day several shillings in as many minutes, and become unsaleable.—I am,  
VERB. SAP.

### THE KABONGA MINING COMPANY, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Though this company has practically exhausted its funds, money is being wasted still in frequent and useless telegrams. Even if alluvial in payable quantities is discovered, the company will have to be reconstructed, with a heavy liability per share, to raise working capital.

What the directors expected to do in three months, and without calling up the final 6d. per share, has not yet been done in a year, although the final call was made months ago.

If, and when, payable alluvial is found will be quite soon enough to formulate a scheme for reconstruction; but if this should ever happen (and thus save this unfortunate company from being compulsorily wound up), I hope the directors will recognise the advisability of reducing the present enormous nominal capital (500,000 shares of 10s. each) to 50,000 shares of £1 each, with at least a 10s. liability thereon. This would give one new share for every ten old ones, and provide £25,000 working capital.—I am, Sir,  
AUSTRALIA.

### THE KEMPINKOTE GOLD FIELD, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Although furnished with complete plant and machinery, and reconstructed only a few months ago, this company has already spent more than £15,000 of its working capital, and the directors have now made a call of 6d. per share, which will provide nearly £13,000.

As so much has been spent in so short a time, with, so far, nothing to show for it, and as the fortnightly reports are so very short and unsatisfactory, I advise shareholders not to pay the call unless and until the directors issue a circular with full particulars as to work done since the reconstruction, a statement as to the expenditure of the £15,000, their opinion of the company's prospects, an estimate of the length of time the funds (to be supplied by the present call) will last, and stating how it will be spent. I attach no importance to the telegrams of the 20th and 29th ult.; such a lode is of no value whatever.

A payable lode must be discovered before the directors will be justified in spending any of the shareholders' money in telegrams. When will the next meeting be held?—I am, &c.  
KEMPINKOTE.

## THE METAL MARKETS.

### LONDON METAL MARKET.

THE METAL MARKET—LONDON, JULY 13.

#### Copper.

THE speculative G.M.B. market opened dull, and the first transaction showed a loss of 2s. 6d. upon the previous Friday's close, s.c. being done at £39 2s. 6d. and three months at £39 10s. Later in the day £38 15s. was accepted for an early date. The decline, which seems to have been chiefly caused by bad news from America, made further progress during Tuesday and Wednesday, s.c. finally touching £38 8s. 9d. This was the lowest point, and with the brighter news from America respecting the railroad strike, our market rallied quickly, and closes firm at £38 17s. 6d. to £39 s.c., and £39 5s. to £39 7s. 6d. three months. The daily turnover averaged about 525 tons. Consumptive demand is quiet, but on the other hand there is very little copper offering, and tough copper especially seems scarce.

#### Tin.

The opening value of Straits tin was £88 15s. s.c., but persistent selling by a leading operator resulted in a fall, which continued until Friday morning, when £87 10s. was reported for actual business. The execution of a largish buying order then induced a recovery to £88 s.c. The market closes a shade easier again, and in dull tone, at £87 15s. to £87 17s. 6d. s.c., and about £88 2s. 6d. to £88 5s. three months. Billiton opened at 41 1/2 fl. s.c., declined to 41 fl., and closed at 41 1/2 fl. s.c. The Dutch market this week has been flat throughout, and prices receded about £1 10s. The close on Wednesday was, however, steady, with a good demand at the lower rates.

#### Pig Iron.

Scotch shipments last week were 5646 tons, or 1201 tons less than in the parallel period of last year. In the Glasgow market 42s. 2 1/2 d. to 41s. 10d. expresses the outside range of s.c. values of Scotch during the first four days of this week. The close, on Thursday, was dull at 41s. 10d. sellers, and the market does not open again until Tuesday.

#### Lead.

has grown still firmer in price, and closes at £9 13s. 9d. to £9 15s. soft foreign, and £9 15s. to £9 17s. 6d. English.

#### Spelter.

is also dearer, and closes firm at £15 18s. 9d. ordinaries, and £16 to £16 2s. 6d. specials.

#### Antimony.

steady at £32.

#### Quicksilver.

continues quiet at £6 firsts, and £5 18s. 6d. seconds.

The following are to-night's (July 13) prices of metals:—

	£ s. d.	£ s. d.
Tough cake and ingot	41 2 6	41 12 6
Best selected	41 12 6	42 2 6
Sheets and sheathing	49 10 0	50 0 0
Flat bottoms	52 10 0	53 0 0
Chill bars	33 17 6	39 5 0
Good merchantable, spot, & 3 months respectively	33 17 6	39 5 0
Copper tubes, seamless	—	0 0 6 1/2
Alloys.		
BRASS: Wire	—	0 0 5
" Tubes (solid drawn)	—	0 0 5 1/2
" Sheets	—	0 0 5 1/2
PHOSPHOR BRONZE: Alloys II.	—	88 0 0
" III. or V	—	93 0 0
" VII.	—	95 0 0
" XI.	—	90 0 0
" Vulcan brand Al B.O.	80 0 0	85 0 0
DURO METAL	—	80 0 0
BULL'S METAL	—	70 0 0
Ingots	—	0 0 5 1/2
Ordinary sheets, plates, bolts and bars	—	0 0 6 1/2
Screw bolts and nuts	—	0 0 8 1/2
Pump rods, plain	—	0 0 7 1/2
" finished	—	0 0 10 1/2
DELTA METAL: No. 4 (per ton)	—	73 10 0
Sheets and plates (per lb.)	—	0 0 10 1/2
Bars, round, square, flat (per lb.)	—	0 0 9 1/2
" hexagon (per lb.)	—	0 0 9 1/2
Tin.		
English, ingots, f.o.b.	71 10 0	72 0 0
" bars	72 10 0	73 0 0
" refined	73 10 0	74 0 0
Straits, spot and 3 months respectively	—	67 15 0
Australian, spot and 3 months respectively	—	68 5 0
Banco (in Holland)	71 5 0	72 5 0
TIN PLATES: Charcoal, best quality	—	0 13 6
" ordinary	—	0 14 0
" Coke, best quality	—	0 10 9
" ordinary	—	0 10 3

These prices of tinplates are f.o.b. at Swansea; at Liverpool 6d. per box more.

	£ s. d.	£ s. d.
Pig, G.M.B., f.o.b., Clyde, spot	—	2 1 11
" Scotch pig, No. 1 Gartsherrie	—	2 13 6
" " Clyde	—	2 12 0
" " Govan	—	2 11 0
Bars, Welsh, f.o.b., Wales	—	2 3 6
Plates	—	5 2 6
Bars, Staffordshire, at works	—	5 7 6
Sheets	—	6 10 0
Plates	—	6 7 6
Hoops	—	5 12 6
Ship plates, Middlesbrough	—	4 17 0
STEEL: English spring, nominal	—	10 0 0
" cast	—	40 0 0
" Rails at works, according to section	—	3 12 6

	£ s. d.	£ s. d.
Spanish or soft foreign	9 13 9	9 15 0
English pig, common	9 15 0	9 17 6
" L.B.	—	10 5 0
" sheet and bar	—	11 5 0
" pipe	—	12 5 0
" red	—	12 5 0
" white	—	14 0 0
" patent shot	—	16 10 0

	£ s. d.	£ s. d.
Silesian ordinary brands	—	15 18 9
" special brands	—	16 0 0
English Swansea	—	16 10 0
Sheet Zinc	—	19 0 0

	£ s. d.	£ s. d.
Antimony	—	32 0 0
Quicksilver.		
Flasks, 75 lbs. warrants	—	5 0 0
Ore, c.i.f., U.K. ports	—	5 10 0
1st quality, 50 per cent. and upwards	—	0 0 11 1/2
2nd " 47 per cent. to 50 per cent.	—	0 0 8 1/2
3rd " 40 " 47 per cent.	—	0 0 8 1/2

	£ s. d.	£ s. d.
Aluminium.		
98-99 1/2 per cent. (guaranteed 98 per cent. min.) in ingots (1 cwt. lots)	—	0 1 10
do (1 ton lots)	—	0 1 9 1/2
98-99 per cent. guaranteed	—	0 1 8 1/2
Nickel.		
98-99 per cent. guaranteed	—	0 1 8 1/2

STARTING with practically nothing in sight, says the *South African Financial Record*, the New Crossus Company has 35,000 tons of ore available, and with the opening up of the third level, which will be completed by March next, 96,000 tons will be available. It is thought probable that each successive level will give an average of 140,000 tons. On this basis the whole mine should yield 1,636,000 tons. It is estimated that the value of the ore to be developed to March or April next will amount to £222,750.

THE George and May Company has struck the south leader in its No. 2 shaft. The tailings contain 53 per cent. of alimes, but, nevertheless, the cost of treatment during May was only 4s. 9d. per ton, leaving a profit of 4s. 7d. per ton.



# "THE MINING JOURNAL" SHARE LIST.

**ABBREVIATIONS AND REFERENCES.**—The following are the significations of the abbreviations and references which occur in the Share List:—A, Antimony; Ar, Arsenic; B, Blende; Bz, Borax; C, Copper; D, Diamond; G, Gold; I, Iron; L, Lead; M, Manganese; N, Nitrate; P, Phosphate; Q, Quicksilver; R, Ruby; S, Silver; S-L, Silver-lead; Sul, Sulphur; T, Tin; and Z, Zinc. \* In the "called up" column of British Mines, signifies that the mine is conducted on "Cost Book" principles; 1 in the "Head Office" column of African Mines, signifies that the address given is not that of the head office, but of a sub- or transfer office, and 1, following the names of African mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and our readers generally, and our readers generally, are cordially invited to co-operate with us in this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct; we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

## BRITISH MINES.

Name	Closing Price, July 13, 1891	Closing Price, July 6, 1891	Par.	Latest Dividend	Called up Per Share	Shares Issued	Situation of Mine	Head Office
Atlas	—	—	£ 1 0	—	£ 1 0	12,000	Devon	Camborne.
Blue Hills	5/- 10/-	17/6	—	2/- May '81	5 9 6	5,353	Cornwall	Camborne.
Botallack	1 1 1/2	1 1/2	—	—	51 4 6	1,880	Cornwall	St. Just.
Carn Brea	6 8 1/2	7 1/2	—	2/6 Dec. '93	21 12 5	6,000	Cornwall	Carn Brea.
Cook's Kitchen	1 1/3 2/9	15/-	—	—	35 15 1	4,900	Cornwall	Camborne.
Cumberland	—	—	1 0	5 1/2 May '88	1 0 0	51,588	Cumberland	7, Angel-court E.C.
Derwentwater, CLZ	—	—	1 0	—	1 0 0	10,750	Cumberland	Manchester.
Deven Gt. Cons. CA	22/6 27/6	27/6	5 0	3/- May '94	2 0 0	10,242	Devon	8, Pinsky-circus.
Dolcoath	65 66	68 1/2	—	12/6 Apr. '94	9 12 6	4,700	Cornwall	Camborne.
Drake Works CTM	-3 -8	-6	0 5	—	0 2 0	61 856	Cornwall	Dashwood House.
East Grassington L	—	—	1 0	—	1 0 0	19 965	Yorkshire	Palmerston-building
East Pool	7 7 1/2	8	—	1/6 June '94	0 9 9	8 40	Cornwall	Illogan.
Gawton	—	—	2 10	—	2 7 1/2	12,000	Devon	20, Great St. Helens
Great Laxey	1 2	2	4 0	5/- Apr. '92	4 0 0	15,000	Ile of Man	Douglas, Tel. of Man
Green Hurlth	1 1/3 1/9	1 9	1 0	-6 June '89	0 19 0	32,000	Cumberland	Newcastle.
Halpin	—	—	1 0	2/- June '94	1 0 0	10,000	Flintshire	Chester.
Haworthy	—	—	1 0	—	1 0 0	14,634	Ile of Man	Devon
Ile of Man	—	—	5 0	5/6 Sep. '93	5 0 0	14,000	Cornwall	Chester.
Killfretth	2 1/2 3 1/2	2 1/2	—	2/- July '94	5 11 2	6,000	Cornwall	Cardiganshire
Kingdale	—	—	1 0	3/- May '92	1 0 0	15,919	Lanarkshire	30, Finsbury-circus.
Lead Hills	12/6 17/6	20/-	6 0	3/- Sep. '92	8 0 0	20,000	Cornwall	Penzance.
Levant	—	—	5 1/2	5/- Dec. '93	11 9 6	2,500	Wendron	3, Gt. Queen-st., S.W.
Lovell	5 1/2 5 1/2	5 1/2	—	1/3 Nov. '91	1 16 7	7,165	Denbighshire	Minera, N. Wales.
Mina (New)	—	—	5 0	5/6 Mar. '90	6 0 0	9,000	Northumberland	Newcastle-on-Tyne
Nenthead End L	-6 1/-	1/-	1 0	6 1/2 Feb. '91	0 18 0	48 8 5	Cornwall	St. Clement's Ho., E.C.
New Cocks Hill, TC	—	—	1 0	—	1 0 0	25,000	Cornwall	Camborne.
Ped-an-drea	—	—	—	—	10 15 0	4,000	Cornwall	Camborne.
Phoenix United TC	1/- 3/-	3/-	—	1/- Mar. '90	7 4 6	10,665	Cornwall	Jiskard.
Polberro	25/- 27/6	27/6	—	—	3 7 9	18,000	Cornwall	37, Waltham.
Prince of Wales TC	2/- 3/-	3/-	0 10	—	0 8 3	94,287	Cornwall	6, Draper's-gardens.
So. Condurrow TC	10/- 15/-	15/-	—	3/6 Apr. '93	17 17 7	6,123	Cornwall	20, Great St. Helens
South Crofty TA	17/6 22/6	17/-	—	—	17 2 6	6,120	Cornwall	Pool, Cornwall.
S. Frances Unit, T	5/- 10/-	10/-	—	—	3 7 6	6,000	Cornwall	Redruth.
Tincroft	9 1/2 10 1/2	10 1/2	—	2/- Apr. '94	15 7 6	6,000	Cornwall	Carn Brea.
Yeardale	7/-	7 1/2	4 0	1/3 Oct. '90	1 10 0	50,000	Dorham	3, Lombard-court.
West Frances	30/- 30/-	30/-	—	2/6 May '93	15 17 1	6,144	Cornwall	Camborne.
West Kitty	5 1/2 6	6	—	4/- Jan. '94	1 2 0	6,000	Cornwall	37, Waltham.
Wheat Agar	11/6 17/6	17/6	—	2/6 Aug. '93	23 5 2	6,000	Cornwall	Redruth.
Wheat Rasek	17/6 20/6	20/6	—	10/- Apr. '93	12 5 0	6,144	Cornwall	Redruth.
Wheat Rasek	17/6 20/6	20/6	—	—	0 11 3	10,000	Cornwall	110, Cannon-st., E.C.
Wheat Rasek	17/6 20/6	20/6	—	—	18 2 0	6,000	Cornwall	7, Union-court, E.C.
Wheat Rasek	17/6 20/6	20/6	—	—	4 5 6	5,500	Cornwall	Truro.
Wheat Rasek	17/6 20/6	20/6	—	—	0 13 9	10,784	Cornwall	7 1/2, Gracechurch-st.

## AUSTRALIAN AND NEW ZEALAND MINES.

Achilles Gt. Fl.	2/6 3/6	3/6	1 0	—	1 0 0	80,307	New Zealand	3, Church Pass, E.C.
Aladdin Lamp	15/3 15/9	17/6	—	1/- Apr. '94	1 0 0	100,000	N. S. Wales	4, Throg. Avenue.
Alama (West)	—	—	1 0	—	1 0 0	75,000	N. S. Wales	5, Throg. Avenue.
Alama (West)	—	—	1 0	—	1 0 0	25,000	N. S. Wales	5, Throg. Avenue.
Anglo-Saxon	—	—	—	2/- July '93	1 0 0	51,000	Queensland	1, Lombard-court.
Australasian	1/3 1/9	1/9	1 0	1/6 Mar. '92	1 0 0	210,000	Queensland	6, Queen-st. place.
Australian	—	—	10 0	1/6 Aug. '93	7 10 0	18,315	N. S. Wales	15, Old Jewry Chbrs.
Aus. Rro. Hill Con.	2/- 2/6	2/6	1 0	1/- June '91	1 0 0	537,138	N. S. Wales	Winchester House.
Baker's Creek	22/6 25/-	25/-	1 0	1/- June '94	0 17 6	110,000	N. S. Wales	Hillgrove, N. S. Wales
Bayley's Reward	15/- 17/-	18/-	1 0	-4 June '94	1 0 0	480,000	W. Australia	2, Met. Ex. Buildings
Blue Spur & G. G.	3/2 3/9	3/9	1 0	—	1 0 0	80,098	New Zealand	6, Gt. St. Helens
Bonnie Dundee	7/- 9/-	10/-	2 0	-3 July '94	2 0 0	250,000	Queensland	3, Gracechurch-st.
Brilliant	15 1/2 15 1/2	15 1/2	2 0	-9 July '94	2 0 0	250,000	Queensland	3, Gracechurch-st.
Brilliant Block	10/- 12/-	11/-	0 10	—	0 6 3	72,000	Queensland	Charters Towers.
Brilliant, St. Geo.	3/6 4/6	4/6	5 0	—	5 0 0	240,000	N. S. Wales	Abchurch Chambers
Brit. Brok. Hill S.	2 1/2 2 1/2	2 1/2	—	1/- June '94	0 8 0	980,000	N. S. Wales	Abchurch Chambers
Brit. Hill P. B. 10	—	—	10 0	1/- Feb. '94	9 13 0	107,000	N. S. Wales	117, Leadenhall E.C.
Brit. Hill P. B. 14	—	—	5 0	—	5 0 0	10,000	N. S. Wales	117, Leadenhall E.C.
Carrington	1/6 2/-	2/-	10 0	-3 June '94	0 12 6	100,000	Queensland	9, Tokenhouse Yard
Carrington's Col.	3/6 4/6	4/6	0 5	—	0 5 0	60,000	N. S. Wales	1, Leadenhall E.C.
Croydon King Bldg.	-9 1/3	1/3	1 0	2/6 Dec. '87	1 0 3	184,790	Queensland	Blomfield Bldg. E.C.
Cumbrind (New) G	5/3 5/9	6/-	1 0	-6 Mar. '93	1 0 0	498,400	Queensland	3, Gracechurch-st.
Day Dawn R.W.G.	2/9 3/9	3/9	1 0	-6 Apr. '92	1 0 0	490,000	Queensland	Winchester Ho., E.C.
Day Dawn P. C. G	-9 1/3	1/3	1 0	—	0 19 3	120,000	Victoria	3, Lombard-street.
Eng. & Aus. Con. Cu	3 1/2	3 1/2	2 0	2 1/2 1893	1 17 6	70,000	N. S. Wales	125, Palmerston-bldg.
Eng. & Aus. 5 1/2 Deb.	7 1/2 10/-	10/-	50 0	6 1/2 July '94	50 0 0	700	N. S. Wales	125, Palmerston-bldg.
Etheridge	—	—	0 5	—	0 5 0	324,790	Queensland	6, Queen-street-pl.
Frederick the Gt. G	—	—	1 0	—	1 0 0	125,000	Victoria	St. George's House.
Glenrock	1/9 2/3	2/3	1 0	—	0 19 6	225,000	N. Zealand	3, Queen-st. E.C.
Golden Gate	1/3 1/9	1/9	0 10	—	0 10 0	146,330	Queensland	9, Tokenhouse Yard
Harrietville	—	—	1 0	-6 July '90	1 0 0	500,000	Queensland	6, Queen-street-pl.
Kaboonga	1/3 1/9	2/-	0 10	—	0 10 0	500,000	Queensland	30, St. Swithin's-lane
Kangaroo	2/- 2/6	2/6	1 0	—	0 8 2 1/2	86,275	N. S. Wales	68, Coleman-street.
Kapang	3/2 3/6	3/6	1 0	-6 Jan. '91	0 19 6	250,000	N. Zealand	9, New Broad-street
Kilgivan	3/6 2/-	2/-	1 0	—	1 0 0	81,392	Queensland	3, Poultry, E.C.
Midas G. P.	—	—	1 0	—	1 0 0	180,000	Queensland	3, Poultry, E.C.
Mills Day Dawn G	1 1/2 1 1/2	1 1/2	—	-6 July '94	0 15 0	300,000	Queensland	3, Gracechurch-st.
Moruya	—	—	1 0	—	59,235	1 0 0	N. S. Wales	16, St. Helen's-place
Moruman	2/6 3/6	3/6	1 0	-6 May '94	1 0 0	185,000	Queensland	3, Gracechurch-st.
Mount Leyshon	-9 1/3	1/3	1 0	-6 Dec. '90	1 0 0	187,989	Queensland	7, Draper's-gardens
Mountain Maid	1/9 2/-	2/-	0 10	—	0 6 3	56,000	Queensland	Leadenhall Bldg.
Mount Morgan	2 1/2 2 1/2	2 1/2	1 0	-6 July '94	0 17 6	1,000,000	Queensland	50, Lime-street.
Mount Shamrock GB	—	—	1 0	—	0 1 0	275,000	Queensland	9, Tokenhouse-yard.
Mount Zeeland	-6 1/3	1/3	1 0	—	1 0 0	192,257	N. Zealand	Manassah Ho., Cham.
N. Smithfield	-6 1/3	1/3	0 10	2/6 June '94	0 10 0	48,000	Gympie	Queensland
New Queen	6/9 7/3	7/3	1 0	-6 Apr. '94	0 19 6	158,915	Queensland	30, St. Swithin's-lane
No. 7 N. E. Queen	-6 1/3	1/3	0 10	-3 Sept. '92	0 8 9	96,000	Queensland	37, St. Swithin's-lane
Queen's Bldy Un	—	—	1 0	—	0 5 0	200,000	Victoria	57, Moorgate-st., E.C.
Queen's Smelting	—	—	1 0	—	0 10 0	75,000	Queensland	7, Gt. Winchester
Scottish Australian	1 1/2 1 1/2	1 1/2	—	14-50 May '94	0 10 0	26,244	N. S. Wales	9, Tokenhouse Yard
Sunburst	1 1/2 1 1/2	1 1/2	—	-6 Mar. '91	0 10 0	150,000	Queensland	9, Tokenhouse Yard
Tasmanian Crown	—	—	1 0	—	0 12 6	125,990	N. Zealand	2, Old Jewry, E.C.
Tipperary	—	—	1 0	—	1 0 0	35,000	N. Zealand	2, Queen-st., E.C.
True Blue	—	—	1 0	-3 July '94	1 0 0	53,000	Australia	Leadenhall Bldg. E.C.
Victoria Associat.	—	—	1 0	-6 July '94	1 0 0	144,000	Queensland	6, Crosby-square
Victory	5/- 7/-	8/-	0 5	-3 Sept. '92	0 5 0	200,000	Queensland	34, Gresham-st., E.C.
Waltham	3 1/2 3 1/2	3 1/2	1 0	1/- June '94	1 0 0	150,000	N. Zealand	11, Abchurch-lane, E.C.
Wentworth Ord. G	3 1/2 4/-	4/-	1 0	—	1 0 0	350,000	N. S. Wales	4, Throgmort. Av.
West. Priority	3 1/2 4/-	4/-	1 0	—	1 0 0	150,000	N. S. Wales	25, 29, 8, Swithin's-lane
W. Argentine	1/3 1/9	1/9	1 0	—	1 0 0	150,000	W. Australia	28-29, 8, Swithin's-lane
W. Australian G.P.	16/3 16/9	16/9	1 0	—	1 0 0	65,000	W. Australia	—
W. Australian G.P.	2/- 4/-pm	4/-pm	1 0	—	0 4 0	—	—	—

## INDIAN AND ASIATIC MINES.

Asia Minor Pref. St.	—	—	0 10	—	0 10 0	42,430	Asia Minor	2, Met. Ex Bldg.
Do. Ord.	—	—	0 10	—	0 9 0	51,584	Asia Minor	2, Met. Ex Bldg.
Baghat Mysore G	5/- 7/-	7/6	1 0	—	0 17 6	160,000	India	6-7, Queen-street-pl.
Burma Ruby.....R	3/6 4/6	5/6	1 0	—	0 17 0	300,000	Burmah	Suffolk House, E.C.
Champion Reef.....G	3 1/2 3 1/2	3 1/2	1 0	—	1 0 0	200,000	India	6-7, Queen-street-pl.
Colar Central	-3/- -5/-	-6/-	1 0	—	1 0 0	200,000	India	Dashwood Ho., E.C.
Coromandel.....G	1/- 2/-	2/6	1 0	—	0 12 6	95,000	India	6-7, Queen-st. place.
Devila Moya.....G	—	—	1 0	—	1 0 0	200,000	India	34, Nicholas-lane.
Gemming & Mining	—	—	2 0	—	1 7 6	19,594	Ceylon	183, Gresham House.
Gold Fide Mine G	21/6 22/6	23/-	1 0	1/- July '92	1 0 0	220,000	India	6-7, Queen-street pl.
Gold Fide Stam G	—	—	1 0	—	1 0 0	150,000	India	19, St. Swithin's-lane.
Hyderabad Dec....	—	—	10 0	—	10 0 0	115,000	Deccan	16, St. Helen's-place
Kompanke Gd Fd	3/- 3/6	3/6	0 5	—	0 3 0	685,473	India	6-7, Queen-st. place.
Mysore	3 1/2 3 1/2	3 1/2	1 0	2/- July, '94	1 0 0	250,000	India	6-7, Queen-street pl.
My. Barnhill	3 1/2 3 1/2	3 1/2	1 0	—	0 18 0	100,000	India	2, East India Avenue
Mysore Rends	12/6 14/6	17/-	1 0	—	0 19 6	124,788	India	6-7, Queen-st. place.
Mysore West	7/3 7/9	8/-	1 0	—	1 0 0	127,408	India	Dashwood Ho., E.C.
Mysore Wynnad G	2/9 3/3	3/-	1 0	—	1 0 0	250,000	India	Dashwood Ho., E.C.
Nerbudda Coal Kin	3 1/2 4/-	4/-	2 0	—	2 10 0	49,639	India	213, Gresham House.
Nine Reefs	2/- 2/6	2/6	0 10	—	0 10 0	50,000	India	6-7, Queen-street-pl.
Nine Reefs	1/- 1/6	1/6	0 10	—	0 9 0	200,000	India	6-7, Queen-street-pl.
Nunddroog	26/- 27/6	28/-	1 0	1/- Mar. '94	1 0 0	200,000	India	6-7, Queen-street-pl.
Oreogum (D. O. C)	3 1/2 4	4	1 0	4/6 July, '94	1 0 0	145,000	India	6-7, Queen-street-pl.
Do. (10 1/2 Pref.)	3	4	1 0	4/6 J-y '94	0 5 0	36,536	India	6-7, Queen-street-pl.
Do. (10 1/2 Pref.)	3 3 1/2	4	1 0	15 1/2 Aug. '99	1 0 0	203,070	Malay Penin.	Blomfield Ho., E.C.
Fahang Corp'n.	7/- 8/-	8/-	1 0	—	1 0 0	394,760	Malay Penin.	4a, Jeffrey's sq., E.C.
Fahang Kabang.	—	—	1 0	—	0 3 9	134,623	India	6-7, Queen-street-pl.
South F. Mysore G	4/6 5/-	5/9	0 9	—	—	—	—	—



## "THE MINING JOURNAL" SHARE LIST (AFRICAN MINES).

Name.	Closing Price, July 13, 1894.	Closing Price, July 6, 1894.	Par.	Latest Dividend.	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.	Name.	Closing Price, July 13, 1894.	Closing Price, July 6, 1894.	Par.	Latest Dividend.	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.
Africander.....	18/9 21/3	22/8	1 0	—	—	40,000	Transvaal.....	19, St. Swithin's-lane	May Consol.....	8/- 9/-	10/-	1 0	—	—	430,000	Witwatersrd.	4, Lothbury.
Agnes Block.....	10/- 12/-	12/-	1 0	—	—	78,507	Transvaal.....	54, Old Broad-street	May Deep Level G	9/- 10/-	10/6	1 0	—	—	145,000	Witwatersrd.	35, Cornhill, E.O.
Appantoo.....	—	—	1 0	—	—	71,000	West Coast.....	9, New Broad-street	Metropolitan (N) G	10/- 12/6	12/6	1 0	—	—	75,000	Witwatersrd.	1, Crosby Square, I
Aurora.....	5/- 7/-	10/-	1 0	5% Mar. '93	—	85,000	Witwatersrd.	8, Old Jewry.	Meyer & Charl.....	5% 5% 1/2	1 0	1 0	25% June '94	—	71,687	Witwatersrd.	Warrford-court, I
Aurora West, New G	4/- 6/-	7/9	1 0	5% Mar. '93	—	80,000	Witwatersrd.	1, Crosby Square, I	Mines Trust.....	13/- 14/-	14/-	1 0	3% May '94	—	82,774	So. Africa	130, Winchester Ho.
Balkis Eersteling.....	1/4 1/2	1/2	1 0	—	—	520,000	Transvaal.....	85, Gracechurch-st.	Modderfontein.....	14/- 15/-	16/-	1 0	3% Feb. '90	—	200,000	Witwatersrd.	Warrford-court, I
Balkis Land.....	1/4 1/2	1/2	1 0	—	—	520,000	Transvaal.....	85, Gracechurch-st.	Montrose.....	7/- 8/-	8/-	1 0	—	—	70,000	De Kaap.....	65, New Broad-street
Balkis Reef.....	1/4 1/2	1/2	1 0	—	—	520,000	Witwatersrd.	85, Gracechurch-st.	Moodies G. & E. G	4/- 5/-	5/-	1 0	—	—	120,000	De Kaap.....	8, Old Jewry.
Barkley.....	13/6 14/8	13/-	1 0	—	—	83,000	Witwatersrd.	Warrford-court, I	Moodies G. & E. G	4/- 5/-	5/-	1 0	—	—	120,000	De Kaap.....	8, Old Jewry.
Barkley Reef.....	2/6 3/3	3/3	1 0	—	—	207,495	De Kaap.....	17, Basinghall-street	Mozambique.....	11/3 13/9	13/9	1 0	2/6 July '91	—	400,000	S. E. Africa	8, Broad-street House
Bechuanaand Exp.....	23/6 24/6	27/6	1 0	—	—	200,000	Bechuanaand.....	19, St. Swithin's-lane	Namaqua.....	13/9 16/3	16/3	1 0	10% June '94	—	194,331	Namaqualand	24, Leadenhall-bldg.
Black Reef (New).....	5/8 6/8	6/8	1 0	—	—	76,000	Witwatersrd.	9, King William-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Block "B" Lang.....	6/- 7/-	7/-	1 0	—	—	535,000	Witwatersrd.	8, Princes-st. E.C.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Booyen Land.....	5/- 7/-	7/-	1 0	—	—	85,000	Transvaal.....	19, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Brit. S. A. Char.....	27/- 28/-	29/-	1 0	—	—	2,000,000	S. Africa.....	19, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Buffelsdoorn.....	28/- 31/-	33/-	1 0	—	—	250,000	Potchefstroom	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Cape Copper.....	13 1/4	13 1/4	1 0	1/3 June '94	—	300,000	Cape Colony.....	9, Queen-street-place	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. 6% Prof.....	13 1/4	13 1/4	1 0	1/3 June '94	—	300,000	Cape Colony.....	9, Queen-street-place	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Con. Montrose.....	1/- 2/-	2/-	1 0	—	—	149,000	Transvaal.....	16, Throgmorton Av.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Champ d'Or.....	13 1/4	13 1/4	1 0	—	—	116,016	Witwatersrd.	16, Throgmorton Av.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
City and Suburb.....	13 1/4	13 1/4	1 0	—	—	75,000	Witwatersrd.	16, Throgmorton Av.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Coetzendoom.....	28/- 27/-	28/-	1 0	—	—	140,000	Grigoland W.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Con. Deep Levels G	13 1/4	13 1/4	1 0	—	—	187,250	Transvaal.....	30, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Con. G. Fields S. A.	9 1/2	9 1/2	1 0	—	—	1,250,000	S. Africa.....	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. 5% Debent.	9 1/2	9 1/2	1 0	—	—	6,000	S. Africa.....	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Crown Reef.....	7 1/2	8 1/4	1 0	—	—	120,000	Witwatersrd.	23, Austin Friars, I	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
De Beers Consol. D	14 1/4	14 1/4	1 0	12/6 June '94	—	799,791	Transvaal.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. 5% 1st Deb.....	10 1/2	10 1/2	1 0	—	—	1,875,000	Transvaal.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. 5% 2nd Deb.....	10 1/2	10 1/2	1 0	—	—	1,875,000	Transvaal.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. 5% Bul Ob.....	10 1/2	10 1/2	1 0	—	—	720,100	Transvaal.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Durban Road Dept. G	5 1/4	5 1/4	1 0	—	—	125,000	Witwatersrd.	28, Leadenhall-bldg.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
East Rand.....	13/6 14/8	14/6	1 0	—	—	570,000	Witwatersrd.	170, Winchester-ho.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Evelyn.....	17/6 22/8	17 1/2	1 0	—	—	66,000	Witwatersrd.	28, Old Jewry. E.C.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Exploration.....	3 1/4 3 1/4	3 1/4	1 0	—	—	14,000	S. Africa.....	30, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Exploring Co.....	3 1/4 3 1/4	3 1/4	1 0	—	—	69,350	S. Africa.....	30, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Ferreira.....	7 1/2 8	8 1/4	1 0	—	—	45,000	Witwatersrd.	29, Holborn Viaduct	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Forbes Reef (New) G	3 1/2 5/-	5/-	1 0	—	—	265,000	Transvaal.....	30, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Goldenbula Deep G	4 1/2 5/-	5/-	1 0	—	—	187,500	Witwatersrd.	29, Holborn Viaduct	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Goldenbula Est. G	4 1/2 5/-	5/-	1 0	—	—	187,500	Witwatersrd.	29, Holborn Viaduct	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. Main Reef.....	18/9 21/3	19 1/2	1 0	—	—	112,750	Witwatersrd.	Warrford-court, E.C.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
George and May.....	18/9 21/3	19 1/2	1 0	—	—	112,750	Witwatersrd.	Warrford-court, E.C.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
George Goch.....	30/- 31/-	33/6	1 0	—	—	200,000	Witwatersrd.	2, Drapers-gardens	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Glencairn.....	3 1/4 4/6	4/6	1 0	—	—	130,000	Transvaal.....	46, Queen Victoria-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Gold Estates T. G	3 1/4 4/6	4/6	1 0	—	—	130,000	Transvaal.....	46, Queen Victoria-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Gold. Fls. Deep.....	13/9 18/3	18/9	1 0	—	—	200,000	Transvaal.....	19, St. Swithin's-lane	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
G. F. of Mashona.....	2 1/2 2 1/2	2 1/2	1 0	—	—	400,000	Mashona.....	2, Tokenhouse-bldg.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
G. F. of Mashona.....	2 1/2 2 1/2	2 1/2	1 0	—	—	400,000	Mashona.....	2, Tokenhouse-bldg.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Grahamstown.....	7/6 8/6	8/6	1 0	—	—	150,000	Witwatersrd.	14, Throgmorton-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Graskop.....	9 1/3 1/3	1/3	1 0	—	—	500,000	Witwatersrd.	85, Gracechurch-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Grigoland W. D.....	6 1/2 7 1/2	7 1/2	1 0	—	—	105,700	Transvaal.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. 6% Debent.....	6 1/2 7 1/2	7 1/2	1 0	—	—	105,700	Transvaal.....	62, Lombard-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Henry Nourse.....	2 1/2 2 1/2	2 1/2	1 0	—	—	100,000	De Kaap.....	Warrford-court, E.C.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Heriot (New).....	4 1/2 4 1/2	4 1/2	1 0	—	—	57,404	Witwatersrd.	1, Crosby Square, I	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Joe's Luck.....	2 1/2 2 1/2	2 1/2	1 0	—	—	21,000	Witwatersrd.	1, Queen Vic-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Johannesburg Por	5 1/2 5 1/2	5 1/2	1 0	—	—	100,000	Witwatersrd.	1, Queen Vic-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Jubilee.....	5 1/2 5 1/2	5 1/2	1 0	—	—	100,000	Witwatersrd.	1, Queen Vic-st.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Jumpers.....	4 1/2 4 1/2	4 1/2	1 0	—	—	98,672	Kimberley.....	19, Finsbury-circus	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Kimberley.....	4 1/2 4 1/2	4 1/2	1 0	—	—	98,672	Kimberley.....	19, Finsbury-circus	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Kimberley Rpt.....	6 1/2 7/6	7/6	1 0	—	—	125,000	Witwatersrd.	2, Drapers-gardens	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Kleinfontein (N) G	19 1/2 19 1/2	19 1/2	1 0	—	—	150,000	Transvaal.....	118, Cannon-street	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Klerkord.....	1 1/3 1 1/3	1 1/3	1 0	—	—	467,000	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Langlaagte Est. G	4 1/2 4 1/2	4 1/2	1 0	—	—	100,000	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. Royal.....	2 1/2 2 1/2	2 1/2	1 0	—	—	100,000	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Lisbon-Berlyn.....	2 1/2 2 1/2	2 1/2	1 0	—	—	100,000	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
London & S. A. Ex.	10 1/2 11 1/2	11 1/2	1 0	—	—	100,000	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Lufpaards Vlei Est.	7 1/2 8 1/2	8 1/2	1 0	—	—	319,703	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Kaap.....	8, Old Jewry.
Do. do. do.....	5 1/2 5 1/2	5 1/2	1 0	—	—	25,000	Witwatersrd.	8, Old Jewry.	New Oliver Estate	13/1 15/1	15/1	1 0	5% Aug. '92	—	195,000	De Ka	



About 3½ fathoms have been driven north of the slide in the 278 since last report, the lode averaging in value about £10 per fathom, and the present end worth £8 per fathom. The winze from the 266, 9 fathoms ahead of the 278 end, is now deep enough, with a better looking lode of late, and at present worth £10 per fathom. The site for another winze is already marked out about 30 fathoms further north, which, we expect, will open up stoping ground of a better class. The ground, which is the ordinary clay slate rock in the 255 end north, is again dry, the water lately referred to coming from small joints running with the cleavage. The other working places are worth on an average £10 per fathom. (Signed) W. H. Rowe.

**LEADHILLS.**—W. H. Pauli, July 9: Brown's Vein. The vein in the 160 fathom level driving south of Jeffrey's shaft is 5 feet wide, composed of spar, quartz, mndic, and a dark stone. In same level north of Wilson's shaft the vein contains a good mixture of spar, but continues too soft for producing ore. In No. 2 winze sinking below the 145 there is no change, the vein showing a little spar, but no ore to value. The 145 north of Jeffrey's shaft and north of cross cut is being extended on vein 18 to 20 inches wide, which continues much of the same character as where intersected. In No. 1 stop over the 145 north of Jeffrey's shaft the vein is 4 feet wide, worth 30 cwt. of ore per fathom. No. 2 stop over same level north will now yield 20 cwt. of ore per fathom. The vein in the 115 fathom level driving north of Jeffrey's shaft is 5½ feet wide, showing more spar and strong patches of lead ore. Vein in No. 1 stop over this level is producing 25 cwt. of ore per fathom. Fair progress is being made in driving cross cut both east and west at the 100 fathom level. In the forebreast of the 100 fathom level south of Wilson's shaft the vein is 4 feet wide, and looks more promising than of late, stone being more congenial for the production of mineral. The eastern portion of vein driving on at this level is without change of note. In Nos. 1 and 2 stopes over drift above the 100 fathom level, the vein will average 4 feet wide and yield 55 cwt. of lead ore per fathom. No. 1 stop above the 85 south of Wilson's shaft will produce 40 cwt. of ore per fathom. In the cross cut driving east at the 70 south of Wilson's shaft the ground has become easier for exploring, which is the only change therein as yet. The vein in the stop over the 50 south of winze is worth 40 cwt. of ore per fathom. In stop below the 35 south of flat rod shaft the vein is yielding 35 cwt. of ore per fathom. In Gripp's adit going south the Sarrowcole vein is 4½ feet wide and continues of a promising character.

**SOUTH FRANCES UNITED.**—July 10: Setting Report. The 285 fathom level to drive west of Pascoe's, by six men and three boys with a boring machine, at £7 per fathom. Lode worth £8 per fathom. The 246 rise against Daubuz's shaft, by six men and three boys with a boring machine, at £7 per fathom. Lode worth £12 per fathom. A rise above the 246 fathom level west of cross course, by six men and three boys with a boring machine, at £6 per fathom. The lode has greatly improved in value above the dropper, and is now worth £35 per fathom. Stope in back of this level west of rise is worth £35 per fathom. Stopping by 16 men at 6s. per ton. Stope in back of the 226 west is worth £11 per fathom. Stopping by six men at 5s. per ton. A rise in back of this level by four men at £6 10s. per fathom. Lode worth £11 per fathom. Stope in back of the 144 fathom level, west of Grenville's, is worth £12 per fathom. Stopping by six men at 3s. 6d. per ton. Stope in back of 134 west of Grenville's is worth £11 per fathom. Stopping by 14 men at 4s. 6d. per ton. he 124 fathom level to drive west of Grenville's by four men at £ 8 10s. per fathom. Lode worth £14 per fathom. Winze sinking below this level by four men at £9 per fathom. Lode worth £10 per fathom. Rise in back of this level by four men at £9 per fathom. Lode worth £10 per fathom. Stope in bottom of this level is worth £11 per fathom. Stopping by six men at 3s. per ton. Daubuz's shaft to sink below the 120 fathom level to be carried 14 feet long and 7 feet wide, by 18 men at £30 per fathom. In our tribute department we have 61 pitches working by 161 men on tributes varying from 9s. to 13s. 4d. in the £, the standard for tin being £40 per ton. —William Hooper, John Opie, Richard Williams, William Henry Edwards.

**WEARDALE LEAD.**—Report on Weardale company's mines for week ending July 7:—Groverake. Adamson's drift west, vein 3 feet wide of spar, slower to work, and worth 14 cwt. per fathom. Groverake cubic fathom stopes worth 12, 16, 14, 12, 14, 14, 14, 14, and 12 cwt. per fathom. The tribute men have returned 24 4-8 blings for the week. —Boltsburn. Stopes above Watt's level in vein worth 22 cwt. in north flat 16 cwt. and in south flat, 16, 34, 18, 36, 28, 26, 26, 18, 18, and 18 cwt. per fathom. —Greenlaws. Nattrass Gill drift, stopes worth 14, 16, and 14 cwt. per fathom. Under stopes in Lees sump worth 30 cwt. per fathom. The tribute men have returned 38 blings of ore for the week. —Sedling. The 64 level east has been driven 1 fathom this week; vein in plat 24 feet wide, mostly rider, some floor spar and a little ore. Stopes above 64 level east worth 14, 18, 16, and 14 cwt. per fathom. Stope above 64 level west worth 6 cwt. per fathom. South vein, Stobb's drift, vein in 4 fathoms. Limestone worth 14 cwt. per fathom. We have driven 6 4-8 fathoms east from shaft, foot in scar limestone, strong vein, composed of carbonate of iron, floor, and quartz spar mixed with a little ore. Ore raised for the week 79 tons. Ore dressed for the week 92 tons. Ore, slag, and fume smelted for the week 125 tons, producing 66 tons of pig lead.

#### COLONIAL, INDIAN, AND FOREIGN MINES.

**GRAVEN'S CALEDONIA.**—Copy of managers' report for fortnight ending May 24: The winze going down from No. 9 level has been sunk a further distance of 9 feet by three men on wagers, making a total distance of 101 feet from the level. There is about 1 foot of nice looking stone in the bottom. In the underhand stopes from No. 9 level there is still about 1 foot of stone. The level itself has been extended 10 feet, making a total of 237 feet from slide. The reef in this drive is about 1 foot, and in the stopes over it about 1 foot of nice-looking stone. No. 8 level has been extended a further distance of 4 feet, making a total of 322 feet from the slide. In the first two stopes there is about 6 inches of reef, in the next 3 inches, and in the next two about 6 inches thick. No. 6 level has been extended a further distance of 6 feet, making a total of 357 feet from the slide. There is about 5 inches of stone in the end. In the two stopes over the level there is about 6 inches of reef. In No. 4 level the road has been laid to the end of crosscut, a distance of 285 feet from flat. The total length of crosscut is 50 feet; we have six inches of reef on the footwall and 8 inches on the hanging wall, with about 8 feet of formation between them. We raised 10 tons of quartz, for the fortnight is 118 tons, making a total of 383 tons for the present crushing. On the Victoria and Queen the carpenters have been at work erecting a tip for the paddock. On the 21st inst. I started nine men—three on each shift—to work on the boundary of our lease. After the dead work is done we will be able to start driving and stoping. The reef in the eastern level is about 5 inches thick; in the leading stopes it is about the same size, and about 8 inches in the No. 2 stopes. I expect to have some quartz hauled from these workings during the next fortnight. (Signed) G. Cabassi.

**NUNDYDROOG.**—June 19: Report of work done for the first fortnight in June: Taylor's shaft sunk 12 feet, total depth 1085 feet. The lode has considerably improved, and is now 2½ feet wide, assaying 14 dwts. per ton. We have suspended sinking temporarily while we start the 1080 levels. 1000 north driven 10 feet, total length 500 feet. The lode being only 4 inches wide, containing a trace of gold. We have stopped this drift, and put the machines to crosscut east. 1000 north crosscut east driven 27 feet, total length 27 feet. We have passed through three branches of quartz, the bigger of which is 10 inches wide, assaying 6 dwts. 12 grains per ton. We are continuing this crosscut to see if there is anything more behind which appears not unlikely from the indication. 1000 north crosscut east No. 1 driven 16 feet, total length from lode 28 feet. This crosscut is a continuation of the one from Taylor's shaft. 920 north from winze driven 35 feet, total length 186 feet. The lode is 3 feet wide, assaying 1 ounce 2 dwts. 18 grains per ton. 920 north winze sunk 22 feet, total depth 22 feet. The lode is a fine one, 6 feet wide, assaying 3½ ounces per ton. —840 North

Crosscut East. This was started on 15th inst. 90 feet south of main shaft, no measurement. —760 North. No. 1 back stopes 4 fathoms in a lode 5 feet wide, assaying 15 dwts. per ton. —760 North. No. 2 back stopes 10½ fathoms in a lode 2 feet wide, assaying 13 dwts. per ton. 680 north driven 13 feet 6 inches, total length 266 feet 6 inches. This is now suspended. 680 north crosscut east driven 10 feet, total length 10 feet; the ground is very hard. 680 north crosscut west driven 8 feet, total length 8 feet; the ground here, too, is hard. Main shaft below 760. This shaft is now completed to within 4 feet of the back of the 840 level. —Kennedy's shaft. Sunk 7 feet, total depth 547 feet. 520 south driven 31 feet 6 inches, total length 74 feet. The lode is 2 feet wide, assaying 1 ounce 19 dwts. per ton. 520 north driven 23 feet 6 inches, total length 88 feet. The lode is 1½ feet wide, assaying 7 dwts. 12 grains per ton. 520 north rise, risen 10 feet, total height 10 feet. The lode is 4 feet wide, assaying 18 dwts. 12 grains per ton. 440 north rise, risen 50 feet, total height 59 feet, when we holed to the 370 north bottom stopes. The lode at point of contact is 3 feet wide, assaying 15 dwts. per ton. —440 North back stopes. Stopped 29 fathoms in a lode 8 feet wide, assaying 17 dwts. 6 grains per ton. —440 South. Stope in back stopped 23½ fathoms in a lode 3 feet wide, assaying 8 dwts. 18 grains per ton. North shaft almost completed to 440 level. The drives, stopes, &c., working by hand labour, are as follows: —920 north drive, size of lode 6 inches, assay value 10 dwts. 18 grains. —920 north crosscut west. 680 north winze, size of lode 6 inches, assay value 7 dwts. 12 grains. 680 north rise and stopes, size of lode 1 foot, assay value 19 dwts. 12 grains. 680 north No. 1 bottom stopes, size of lode 1 foot, assay value 7 dwts. 12 grains. 680 north No. 2 bottom stopes, size of lode 1 foot 6 inches, assay value 8 dwts. 18 grains. 680 north No. 1 back stopes, size of lode 1 foot, assay value 5 dwts. 12 grains. 600 north No. 2 bottom stopes, size of lode 1 foot 6 inches, assay value 12 dwts. 600 north No. 3 bottom stopes, size of lode 1 foot 6 inches, assay value 6 dwts. 600 north No. 4 bottom stopes, size of lode 1 foot 6 inches, assay value 9 dwts. 18 grains. 600 north No. 1 back stopes, size of lode 9 inches, assay value 15 dwts. 600 north No. 2 back stopes, size of lode 1 foot 6 inches, assay value 10 dwts. 18 grains. 600 north intermediate, size of lode 1 foot, assay value 5 dwts. 12 grains. 520 north No. 1 bottom stopes, size of lode 1 foot 3 inches, assay value 18 dwts. 12 grains. 520 north No. 2 bottom stopes, size of lode 1 foot, assay value 7 dwts. 520 north, No. 3 bottom stopes, size of lode 9 inches, assay value 8 dwts. 18 grains. 520 north, No. 4 bottom stopes, size of lode 1 foot 6 inches, assay value 10 dwts. 520 north, No. 1 back stopes, size of lode 1 foot 3 inches, assay value 7 dwts. 12 grains. 520 north, No. 2 back stopes, size of lode 1 foot, assay value 6 dwts. 12 grains. 370 north, No. 1 back stopes, size of lode 1 foot 3 inches, assay value 9 dwts. 18 grains. 1000 south winze, size of lode 6 inches, assay value 3 dwts. 6 grains. —Kennedy's. 95 north, No. 1 bottom stopes, size of lode 3 feet, assay value 2 ounces. 95 north, No. bottom stopes, size of lode 1 foot, assay value 5 dwts. 12 grains. 160 north intermediate, size of lode 3 inches, assay value 1 ounce 6 dwts. 160 north, intermediate No. 1 winze, size of lode 6 inches, assay value 1 ounce 5 dwts. 300 south, No. 1 back stopes, size of lode 3 feet, assay value 8 dwts. 300 south, No. 2 back stopes, size of lode 2 feet, assay value 2 ounces. 300 north, No. 2 back stopes, size of lode 3 feet, assay value 15 dwts. 300 north, No. 3 back stopes, size of lode 4 feet, assay value 2 ounces 2 dwts. 6 grains. 370 north, No. 1 bottom stopes, size of lode 6 inches, assay value 4 dwts. 6 grains. 440 south drive, size of lode 10 inches, assay value 12 dwts. —Mills. Both mills and tailings machinery are running well. The amalgam collected up to date is in excess of last month, and I hope we shall have an increased return. —Health. The general health of the camp is good. —Old Mill Samples. Rough quartz, through stonebreaker, 1 ounce 12 dwts. 12 grains; smalls, 2 ounces. —New Mill Samples. Rough, through stonebreaker, 1 ounce; smalls, 18 dwts. 12 grains.

**HARQUAHALA.**—The board, having requested Mr. Wartenweiler to visit and report upon the mine, have now pleasure in handing to the shareholders a copy of his report just received. The "apprehension" referred to by Mr. Wartenweiler applies only to the lower workings of the Bonanza group, and to these workings his attention was directed. The board are pleased to be able to add that recent reports as to the developments in the Golden Eagle group are very promising. Mr. Allen, the manager, having had occasion to visit California, is unavoidably detained there, owing to the railway strike now in progress; the despatch of the monthly report for June will, in consequence, be delayed beyond the usual time. Mr. Wartenweiler's report is as follows:—On the 20th current I returned from Harquahala. My investigation was confined principally to the lower workings of the Bonanza Mine, and the porphyry zone in particular, since the apprehension has been expressed that the porphyry threatened to absorb and replace everything of value. Referring to the various reports on the property, it will be remembered that the Discovery vein was described as being enclosed at surface within quartzite walls; at or near the fourth level the porphyry intruded and formed thereafter the footwall. From the fifth level downwards the ore channel evidently enters into the porphyry, and the quartzite occurs only in fragments. A similar condition of affairs pertains to the Iron vein. Near the surface we had a footwall of limestone and a shale-quartzite hanging wall. The change of formation can now clearly be traced in the Iron vein winze until at the sixth level the Iron vein is entirely in porphyry. In order to prospect the seams of ore encountered by the main crosscuts on the sixth level I caused a winze to be started at the point where a find of base ore had been reported. The seam, about 2 feet in thickness, flattened considerably in sinking some 10 feet upon it, but it had certainly not weakened, and the value of the ore taken out yielded from \$10 to \$16 per ton. The course and inclination corresponds remarkably well with the footwall section of the Discovery vein. At crosscut No. 2 another seam, about 2 feet thick, is exposed. I believe this ore was valued at the time at \$10 to \$20, which about agrees with some samples taken by myself. (The amount of copper in the shape of pyrites in both cases is not sufficient to cause serious discrepancy in milling.) At a point near the top of the new incline shaft a winze was started some time ago, showing the Iron vein in its place and shape. This winze was discontinued, firstly, because it made a little water, and secondly, because the vein stuff was considerably mixed and showed only about \$6 in gold. The south drift on the Iron vein has up to lately and quite persistently carried all the characteristics of this vein, some of the ore being of very good grade. Here we have, then, four different points—two on the discovery and two on the Iron vein—all of them on the sixth level and all in porphyry, showing ore of good grade. I cannot in the face of such evidence consider as logical the assumption that the life of these veins ends with the advent of porphyry. My opinion may remain unsupported so long as ore bodies are not actually opened up, and, had I not feared to hamper and interrupt the regular exploitation of the mine, work in a downward direction upon various points, would have been organised at once. The seventh level will, of course, admit of a more systematic and economical mode of exploring this region. From a mineralogical point of view I can see no reason why the porphyry should not be ore-bearing. While the appearance and structure of this material (quartz porphyry) is distinctly different from that of the quartzite (or felsite) yet they are closely related rocks—belonging to nearly the same metamorphic series. The porphyry belt is quite extensive to the north of the mine, and is creviced and fissured in close proximity to the present workings as well as at a distance of several miles. Mr. Allen called my attention more particularly to the hard porphyry bars which occur at certain points on the sixth level. I admit that this contains a valid objection, principally from an economic point of view. The feldspar, which is one of the component parts of the porphyry ordinarily met with, is in this case largely replaced by quartz of a granular and flinty description, rendering the rock excessively hard. Such bars will, in all probability, alter the shape and interrupt the direction of ore channels at inconvenient points. The ore body opened upon the fourth level upon what was originally known as the horse or porphyry vein has on its downward course to the sixth level shown such a series of twists and contortions that similar irregularities must be looked for in the future. Following up seams of pay ore, no matter what their direction, offers the only remedy for the evil. This mode of prospecting would have been

adopted earlier had not, as Mr. Allen justly remarks, the objective point of the main cross cut been the earliest possible connection with the iron winze. I confidently hope that developments may shortly prove the correctness of my assertions.

**LOMA GOLD.**—The secretary of the Loma Gold Mines (Limited) reports that he has yesterday received by mail the details of completion of the new Cruz-Gorda section of ditch (cablegram as to which was published last month), the construction of which was carried out by Mr. J. G. Carleton, M.E., under the supervision of Mr. W. St. David Griffith. The following is a resume:—This section as completed consisting of a tunnel 262 feet long, and 92 yards of ditch connecting this with the Guarumo section 3312 yards of open ditch to the outlet of the pipe line, 2700 feet of 15 inch tubes, which pass the precipitous rocks on an average effective pressure of 240 feet, and a further length of 2317 yards of open ditch to the lake at Cruz Gorda stream thus making a total length of nearly four miles. The pipe line was carefully selected, and the pipes have been laid and secured to the face of the rocks in a manner reflecting the highest credit on Mr. Carleton. Upon turning on the full amount of water for the first trial, everything passed off without any hitch, the air valves did their work well, and the joints gave little or no leakage. The total water supply tapped by this ditch amounts to over 350 miners inches. The supply was then turned into the Guarumo section, and together with the Guarumo water gave a total supply of not less than 750 miners inches. This section of ditch is the most difficult waterway in this country. The cost approximately is only £4965, the company having greatly benefited by the rate of exchange. The secretary adds that the annual report by Mr. Prender, the superintendent, is overdue, and should arrive this month, upon its receipt the annual general meeting will be held.

**OSCAR GOLD.**—The following report has been received from the mine, dated Hangesund, July 6:—Hodgkinson's lode. The 500 feet north level is being driven by two men, who are making good progress. In present end the run of quartz is small, the lode being somewhat pinched. An improvement, however, in this direction can be daily expected. There is no alteration in the composition of the lode—quartz containing a little iron pyrites, chloritic schist, and calc spar having place. The rise in back of 200 north shows a lode over 3 feet in width, chiefly quartz. A band of quartz on footwall, 8 inches wide contains galena and copper pyrites, and assays 3 dwts. gold per ton. In back of 150 south a stopes is being worked. The quartz averages a foot in width, and assays 3½ dwts. of gold per ton. A stopes working below the 300 north level carries quartz 10 inches wide, containing galena and copper pyrites, and assaying 6 dwts. gold per ton. Several other points in the mine could advantageously be worked had we miners. The sinking of the main shaft and the driving of the several north levels should be resumed, while the 300 south level, which in present end has quartz over 4 feet wide, ought also to be extended.

**OOREGUM.**—Superintendent's report for fortnight ending June 18: Taylor's shaft sunk 6 feet 3 inches, total depth below the 460 feet level 121 feet. Lode 3 feet 6 inches wide, assay value 1 ounce 12 dwts. 16 grains. The 460 feet level south driven 22 feet, total 366 feet. Lode 5 feet 6 inches wide, assay value 1 ounce 12 dwts. 22 grains. No. 1 winze 460 feet level south sunk 6 feet 3 inches, total 33 feet. Lode 1 foot 6 inches wide, assay value 5 ounces 8 dwts. 21 grains. No. 2 winze 460 feet level south sunk 5 feet 3 inches, total 23 feet 6 inches. Lode 1 foot 6 inches wide, assay value 1 ounce 1 dwts. 19 grains. The level south from No. 4 rise in back of 280 feet level south driven 12 feet 6 inches, total 23 feet 3 inches. Lode 1 foot 9 inches wide, assay value 2 ounces 4 dwts. 15 grains. Wallroth's shaft sunk 9 feet 9 inches, total 860 feet. Lode 1 foot 9 inches wide, assay value 18 dwts. 12 grains. At this depth we thought it advisable to suspend sinking and commence the 860 feet levels north and south, and when sufficiently advanced, the sinking will be resumed, and the trip plat excavated concurrently. The 860 feet level south driven 3 feet. Lode 1 foot 3 inches wide, assay value 8 dwts. 17 grains. The 860 feet level north driven 3 feet. Lode 2 feet wide, assay value 7 dwts. 14 grains. The 760 feet level south driven 23 feet 3 inches, total 184 feet 6 inches. Lode 1 foot 3 inches wide, assay value 9 dwts. 19 grains. No. 1 winze, 760 feet level south, sunk 4 feet 9 inches, total 11 feet. Lode 3 feet wide, assay value 12 dwts. No. 1 winze, 760 feet level north, sunk 2 feet 9 inches, total 9 feet. Lode 1 foot 6 inches wide, assay value 13 dwts. 2 grains. No. 1 rise, 760 feet level north, risen 10 feet 9 inches, total 23 feet 3 inches. Lode 1 foot 9 inches, assay value 10 dwts. 20 grains. The 660 feet level south driven 21 feet 6 inches, total 554 feet. Lode 1 foot 6 inches wide, assay value 9 dwts. 19 grains. No. 2 winze, 660 feet level south, sunk 2 feet 3 inches, total 45 feet 9 inches. Lode 1 foot 4 inches wide, assay value 15 dwts. 6 grains. No. 3 winze 660 feet level south sunk 3 feet 6 inches, total 30 feet. Lode 1 foot wide, assay value 12 dwts. No. 4 winze 660 feet level south sunk 5 feet, total 12 feet 3 inches. Lode 6 inches wide, assay value 14 dwts. 4 grains. No. 2 rise 660 feet level south risen 3 feet 3 inches, total 18 feet 6 inches. Lode 1 foot 3 inches wide, assay value 1 ounce 17 grains. No. 3 rise 660 feet level south risen 3 feet, total 18 feet 3 inches. Lode 1 foot 6 inches wide, assay value 16 dwts. 8 grains. No. 1 winze 660 feet level north sunk 5 feet 9 inches, total 65 feet 6 inches. Lode 2 feet wide, assay value 14 dwts. 4 grains. The 560 feet level south driven 22 feet 3 inches, total 938 feet 9 inches. Lode 1 foot 3 inches wide, assay value 1 ounce 3 dwts. 22 grains. We are hoping to communicate this level with Taylor's shaft by the end of this month. No. 2 winze 560 feet level south sunk 1 foot 6 inches, total 67 feet 9 inches. Lode 9 inches wide, assay value 13 dwts. 2 grains. No. 3 winze 560 feet level south sunk 9 inches, total 54 feet 3 inches. Lode 1 foot 6 inches wide, value 12 dwts. No. 4 winze 560 feet level south sunk 2 feet 3 inches, total 65 feet 9 inches. Lode 1 foot 4 inches wide, assay value 8 dwts. 17 grains. No. 5 winze 560 feet level south sunk 4 feet 9 inches, total 72 feet 9 inches. Lode 2 feet wide, assay value 7 dwts. 15 grains. No. 6 winze 560 feet level south sunk 5 feet, total 68 feet 9 inches. Lode 1 foot 6 inches wide, assay value 1 ounce 17 grains. No. 7 winze 560 feet level south sunk 4 feet 6 inches, total 11 feet. Lode 1 foot 3 inches wide, assay value 1 ounce 6 dwts. 2 grains. The incline winze on point of fold 280 feet level north sunk 6 feet 6 inches, total 25 feet 3 inches. Lode 1 foot 6 inches wide, assay value 1 ounce 1 dwts. 19 dwts. The 215 feet level north driven 18 feet 6 inches, total 418 feet 9 inches. Lode 9 inches wide, assay value 1 ounce 2 dwts. 21 grains. Low's shaft sunk 7 feet 6 inches, total depth 590 feet 1 inch. The crosscut east from 510 feet level south advanced 4 feet 6 inches, total 11 feet 6 inches, which we consider has proved that the branch referred to in last report is the lode. On this we have commenced to drive south, 5 feet measured for this report. Lode 6 inches wide, assay value 1 ounce 12 dwts. 16 grains. Level south from crosscut west, 510 feet level, driven 3 feet 6 inches, total 12 feet. Lode 12 inches wide, assay value 12 dwts. Probyn's shaft sunk 7 feet, total depth 986 feet. The 950 level south driven 12 feet 6 inches, total 127 feet 6 inches. Lode 6 inches wide, assay value 1 ounce 19 grains. No. 1 winze, 950 feet level north, sunk 2 feet 3 inches, total depth 36 feet 9 inches. Lode 6 inches wide, assay value 10 dwts. 20 grains. The 860 feet level south driven 12 feet, total 263 feet 6 inches. Lode 9 inches wide, assay value 9 dwts. 19 grains. No. 1 winze 860 feet level south sunk 3 feet 9 inches, total 51 feet 9 inches. Lode 1 foot wide, assay value 13 dwts. 2 grains. —No. 2 Trial Shaft. The 250 feet level south driven 9 feet. Lode 2 feet wide, assay value 1 ounce 7 dwts. 5 grains. The 250 feet level north driven 10 feet. Lode 1 foot 9 inches wide, assay value 1 ounce 2 dwts. 21 grains. —Exploratory Work. Wallroth's Shaft. Crosscut west from 280 feet level south towards Monday's lode driven 21 feet 9 inches, total 397 feet. We intersected yesterday in this drive a branch of quartz 4 inches wide, a sample of which has been washed, but it showed no free gold. We cannot recognise this as the lode, and shall, therefore, continue the crosscut. Throughout the mine 33 stopes are being worked, which are producing quartz of fair average value. They will be measured and reported on at the end of month.

**WOLHUTER.**—Crushing for June, 1894, 1570 ounces from 3490 tons, 850 ounces from tailings.



**ALAMILLOS.**—Mine report for fortnight ending July 4th: The 85 fathom level driving west of Taylor's engine shaft is laying open good stopping ground, and is valued at 2 tons per fathom. In the 160 west of the same shaft the lode is large and produces good stones of ore. The lode in the 100 west of Judd's engine shaft worth 3 ton per fathom; continues regular and compact. In the 100 east of the same shaft the lode is promising and carries lead in the lower part. Miguel's winze sinking below the 20 fathoms level is going down speedily through a good shoot of ore, and is valued at 2 tons per fathom. The stopes continue to yield well. Surface works are kept on very regularly, and the machinery is in good working condition. Estimated raisings for July 250 tons. The tributers returned 39½ tons of ore in the past month.

**BRIILLANT BLOCK.**—Mine manager's report for fortnight ending 16th May: Underlie shaft deepened 12 feet, present bottom below No. 5 plat 80 feet. Reef about 3 feet 6 inches medium quality. No. 5 level west extended 8 feet, total length 154 feet. No change since last report. Stopes over this level carry a reef from 6 inches to 3 feet thick of good quality. No. 5 level east extended 23 feet east, total length from shaft 181 feet. Reef 4 feet thick, good quality. In the stopes reef varies from 1 to 4 feet thick of fair quality. No. 4 Level West, Stopes: The reef varies from 1 to 3 feet thick of low quality. No. 4 Level East, Winze. Deepened 18 feet, total depth from level 87 feet, and holed into No. 5 level 15 feet from winze. This winze has opened up a nice block of ground, and carries a good reef nearly all the way down. Stopes look well, reef averaging 18 inches thick of fair quality. No. 2 winze from this level sunk 30 feet, total depth from level 54 feet. Hope to break through to No. 5 east stopes in a few days. Stone raised 740 tons. Stone crushed 78½ tons for 1120 ounces 19 dwts gold.

**BROKEN HILL PROPRIETARY.**—For the week ending the 5th inst. 11,400 tons of ore were treated, yielding 923 tons of lead, containing 216,030 ounces silver. The Melbourne office reports that for the next few weeks low returns are likely to occur, as we have struck body of low grade ore in open cuts, which has to be sent to the smelters direct to save double handling. The price of the shares in Melbourne is £2 12s. buyers.

**CUMBERLAND GOLD.**—May 4: Owing to the continuance of the wet season, the quantity of water soaking from the surface into the bottom of the shaft has necessitated constant baling during the month. Some repairs to the feed pump were rendered imperative, the valves being actually eaten away by the bad water. We shall not be troubled with bad water after the cessation of the rains. The party of tributers mentioned in my last report decided on resuming work in No. 4 level north where they are now obtaining a little ore of fair quality. (Signed) Anthony Gallagher.

**FORTUNA.**—Mine report for fortnight ending July 4: Canada Inco Mine. In the 150 fathom level driving west of O'Shea's engine shaft, the lode turns out some good lumps of ore, and is valued at 3 ton per fathom. The lode in the 110 west of San Pedro's shaft continues regular, but is without value. Los Salidos Mine. The lode in the 200 east of Taylor's engine shaft has slightly declined in value, and is now estimated at 2 tons per fathom. In the 105 east of Palgrave's shaft the lode is small and unproductive.

**LINARES.**—Mine report, dated July 4: Pozo Ancho Mine. The lode in the 200 fathom level, driving west of Peill's engine shaft, worth 3 ton per fathom, has declined in value during the past fortnight. In the 155 west of the same shaft the lode is small, but yields some stones of ore. The 178 west of Warne's cross cut turns out some stones of ore, but not enough to value. No. 276 winze sinking below the 178 fathom level the water having increased in this winze we fixed the drawing lift last week, and having forked the water, resumed sinking. The lode is large but unproductive. The stopes continue to yield well. Surface works are kept on very regularly, and the machinery is in good working order. Estimated raisings for July 200 tons. The tributers returned 121 tons of ore in the past month. Quinientos Mine, Taylor's engine shaft. The lode in the 185 east is small and the granite is hard for driving through. In the 165 east the lode continues regular, but does not contain sufficient ore to value. The lode in the 150 east has fallen off in value, and is now valued at 1 ton per fathom. In the 130 east the lode is small and unproductive. Good progress is being made in sinking Ginis winze below the 150 fathom level. The lode is very productive, and is valued at 2 tons per fathom. Estimated raisings for July 150 tons. The tributers returned 63½ tons of ore in the past month.

**OURO PRETO.**—June 16: Passagem mine. Incline shaft No. 1 was sunk 5-80 metres. Quartz carrying good patches of pyrites has been passed through, but the main portion is now standing over the roof, and the breast of the incline is chiefly in quartzite. Incline shaft No. 2 was sunk 7-20 metres, still full size in strong quartz lode, which now carries both tourmaline and arsenical pyrites, and has very much improved in yield. Sinking will be temporarily suspended to allow of a rise being put up through the lode for communication to 435 level north-east which is getting close to the shaft. The rise will also give an idea of the value of the lode above the low grade quartz in which the shaft was sunk at that point. 435 end north-east was driven 6-30 metres in dark coloured schist with quartz standing along the floor and lower part of end. Winze in crosscut from 435 north-east was sunk 3-80 metres in hard itabirite, but has got through the hanging wall of the lode, and is expected to hole to the roof of the shaft very shortly. 435 end south-west was driven 3-60 metres, and carries a small branch of quartz against the roof, but the breast is chiefly in quartzite of no value. 400 end north-east was driven 8-50 metres. The lode has gradually increased in size and is full size of the level. It is composed of quartz carrying good patches of pyrites throughout. Crosscut from stopes at 400 north-east was driven 6-60 metres with the object of exploring the ground behind the slide in No. 4 stopes. So far it is in hard quartzite and has not reached the footwall. 365 end north-east was driven 5-60 metres full size in quartz carrying strings of pyrites, though latterly the ore has been rather more mixed with quartzite than usual. Ends from Nos. 2 and crosscuts at 365 north-east were driven respectively 5 and 5-50 metres when communication was effected. The drive of these levels has opened up a piece of stopping ground 50 metres long, and the quartz is of good average yield. 365 end south-west was driven 7-20 metres in lode 1-50 metres thick, composed of quartz with a good deal of tourmaline and some solid patches of pyritic ore. Crosscut at 315 north-east was driven 0-90 metres, and as the quartz had made an abrupt change of inclination driving was suspended and the men were put to open up a stope to see the general form and direction of this ore body. 315 end south-west was driven 6 metres. The lode is more compact with less admixture of schist and quartzite, and is standing full size of the breast. Rise over 315 south-west was advanced 6-60 metres in schist without ore. Rise from 265 south-west was advanced 6 metres in mixed schist and quartzite without change. Crosscut from 265 south-west was advanced 5-10 metres in quartzite, and so far no lower pyritic branches have been met with. Rise from 265 level between shafts was advanced 2-60 metres and holed to stopes above in quartz well spotted with pyrites. Stopping over this level, which had become difficult for want of communication, can now be resumed when required. 215 end north-east driven 7-90 metres, and shows a branch of ore about 50 centimetres thick along the floor, which appears to be increasing in size. 175 end south-west was driven 4 metres in schist, and shows no change. Stopping. In the north-east section the stopes between the 315 and 365 continue to produce good quality ore. In the stope south-west from crosscut the lode has become smaller as it nears the limit of the ore shoot, and now averages about 2 metres thick, but on the north-east side it has a strong regular appearance, and is over 3 metres thick, and well charged with lines and strings of pyrites. The stopes at the 400 level continue to be very productive, and the No. 4 stope alone produced about 700 tons of ore. In this stope the slide or head continues on the north-east end clearly the limit of the ore shoot in that direction. Against it the quartz carries a good deal of pyrites, and all over the stope it is about 6 metres thick. A little stopping was also done in the other three stopes between the shafts, and the same body of lode runs through all. On the south-west side the stope from rise 28 is opening up well, the quartz carrying much less quartzite and schist than formerly. At the level over 365 the stopes

continue in strong massive quartz lode, with a bar of quartzite against the hanging wall. Over the 315 south-west the lode in the two stopes worked is nearly 5 metres thick, and is composed of white quartz carrying little pyrites. The lode in stopes over 265 south-west shows no falling off in size, and though a thickness of 6 metres is being carried, quartz is still left against the roof, to be removed later on, when the stope is filled. Horses of schist still occur, but are not so large as formerly, and against the footwall rich lines of friable arsenical pyrites are met with. A stope worked from rise 22 is yielding little ore at present, being met in schist with a bunch of ore only in the upper corner. Under the 215 between the shafts, stripping ore in roof and sides of old stopes is being carried on, as the excavations are filled with attle, and in some places a good quantity of ore is recovered.

**AUSTRALASIAN.**—Fortnightly report of Mr. John James, manager, dated 24th May: In the underhand stope on the Orient reef the crushing stuff is getting less, with little gold showing. In the stopes over the level going south there is only 2 or 3 inches, showing a little gold, except a small portion on our southern boundary, where there is about 12 inches of crushing stuff. This will be taken out in a few days. In the stopes above the 690 level there was a fair body of crushing stuff showing a little gold, but it has now completely cut out, and I see no signs of it making again. For the four weeks ending 22nd May there were 290 tons of quartz raised and crushed for a return of 113 ounces 5 dwts. 12 grains of smelted gold. The prospects of the mine altered so much during the past month that it was deemed advisable to stop working. Therefore, all hands were knocked off, with the exception of six, who are kept on to hold the ground pending further instructions.

**BUFFELSDOORN ESTATE AND GOLD.**—Result of last month's crushing yielded 4700 ounces of gold; 10,000 tons crushed, 8100 tons treated by cyanide.

**CHIAPAS.**—Mine report for fortnight ending June 15: Providencia Avar advanced 9 feet, total 25½ feet. Continues very poor, but in ore. Assay 2 dwts. gold, 1 ounce 19 dwts. silver, and 1-84 per cent. copper. Santa Fé drift advanced 8 feet, total 86 feet. Extracted 27 tons fairly good stone. Assays 17 dwts. gold, 9 ounces 6 dwts. silver, 6-68 per cent. copper, and 13 dwts. 12 grains gold 7 ounces 16 dwts. 12 grains silver and 4-74 per cent. copper, immediately over the lower part of Taylor No. 2 stope. Sylva crosscut advanced 13½ feet, total 16 feet. Cut a small irregular seam of ore, showing copper pyrites, bournite, and galena on contact, of what appears to be a dyke crosscourse. Santa Fé winze unwatered. On the 11th inst. restarted pump and rock drills. Providencia S. Hill prospecting drift, commenced crosscutting half way in, advanced 10 feet. Shows copper stone in vein stuff. Taylor No. 3 stope extracted 229 tons; poor. Assays 1 ounce 2 dwts. gold, 9 ounces 8 dwts. silver, and 5-79 per cent. copper, and 13 dwts. gold, 8 ounces 7 dwts. silver, and 5-13 per cent. copper. Taylor No. 2 stope extracted 80 tons hand sorted. Assays 8 dwts. gold, 8 ounces 7 dwts. silver, and 4-60 per cent. copper, and 7 dwts. gold, 7 ounces 15 dwts. silver, and 3-79 per cent. copper. Santa Fé stope extracted 342 tons; poor. Assays 8 dwts. gold, 6 ounces 18 dwts. silver, and 3-68 per cent. copper. Old Providencia extracted 332 tons; below general average. Assays 16 dwts. gold, 9 ounces 2 dwts. silver, and 6-71 per cent. copper. (Signed) Edward T. McCarthy.

**COROMANDEL.**—Superintendent's report for fortnight ending June 16: Coromandel shaft. 320 feet level north driven 15 feet 5 inches; total from shaft, 399 feet 7 inches. Lode in end, 1 foot wide, of solid quartz; assay value, 10 dwts. 8 grains per ton. 420 feet level north driven 23 feet 2 inches; total from shaft, 200 feet. There is a slight improvement in the end, which now shows about 4 inches of quartz in a well-defined leader. The assay value of this quartz is 6 dwts. per ton. 420 feet level south. This end is still very poor and unpromising in appearance. Distance driven 10 feet 2 inches; total from shaft, 98 feet 2 inches. Prospect shaft. This has been sunk a further 3 feet 4 inches, i.e., 8 feet 4 inches under the 500 feet level, and suspended. The machine has been placed to drive the 500 feet crosscut west, which has been advanced 5 feet. The object of this cross cut is to prove the ground west of Prospect shaft, and to undercut a small lode indicated at surface, and distant from Prospect shaft about 180 feet. 500 feet cross cut east has been advanced 10 feet 4 inches, a total of 15 feet 4 inches from shaft. Lode not yet intersected. 500 feet level south of No. 1 winze driven 12 feet 9 inches, total 111 feet 9 inches. Lode small and of no milling value. No. 2 winze under 440 feet north has been sunk 16 feet 3 inches, its total depth being 39 feet 9 inches. The quartz leader, which has been from 2 to 2½ feet wide, has pinched out during the last few feet, but we believe this disturbance is only temporary. Some samples of quartz from this winze have assayed as high as 3 ounces of gold per ton.

**GREAT SOUTHERN TIN AND GOLD FIELDS.**—The mining manager reports: That the Agnes River Company, whose property adjoins the Great Southern, and who are working on the same deposit, having completed the sluice boxes, have got to work sluicing, the present face has a depth of 40 feet, and carries tin and fine gold from the grass roots downwards, increasing in value as it advances into the bank. It is expected that on the next clean up the boxes will yield several tons of tin sand.

**GOLD FIELDS OF MYSORE.**—Fortnightly report on prospecting operations dated June 19: West Balaghat Block, No. 1 Shaft. The north drive from the bottom of this shaft, 107 feet from surface, has been extended 3 feet, total distance from shaft 53 feet 3 inches. Lode 2 feet wide, assaying 1 ounce 11 dwts. 8 grains of gold per ton. South drive has been driven 4 feet, total distance 67 feet. Lode 1 foot 8 inches wide, assaying 14 dwts. 3 grains of gold per ton. No. 2 Shaft. This has been sunk 3 feet 6 inches, total depth 133 feet 6 inches. Lode 1 foot 9 inches wide, assaying 1 ounce 4 dwts. 16 grains of gold per ton. North drive, 100 feet from surface, has been driven 2 feet, total distance 66 feet. Lode 2 feet 4 inches wide, assaying 10 dwts. 9 grains of gold per ton. South drive driven 2 feet, total distance 78 feet. Lode 1 foot wide, assaying 18 dwts. 8 grains of gold per ton. No. 4 Shaft. This has been sunk 3 feet 9 inches, total depth 127 feet 9 inches. Lode 1½ foot wide, assaying 1 ounce 11 dwts. 17 grains of gold per ton. Road Block. Shaft 40 feet north of No. 4 Trial shaft. Eastern lode has been sunk 9 feet, total depth from surface 32 feet. Lode in bottom 1 foot 6 inches wide, assaying 11 dwts. 15 grains of gold per ton. No. 3 shaft, north of No. 2 Eastern lode. Having met with water in this shaft we have been obliged to suspend sinking and have started to drive north and south of shaft at a depth of 53 feet from surface. North drive has been driven 6 feet. Lode 9 inches wide, assaying 1 ounce 10 dwts. 4 grains of gold per ton. South drive driven 12 feet. Lode in the end 3 feet wide, assaying 15 dwts. 6 grains of gold per ton. No. 4 shaft, north of No. 3 on eastern lode, has been sunk 15 feet, total depth 40 feet. Lode 2½ feet wide, assaying 9 dwts. 10 grains of gold per ton.

**GOLD FIELDS OF MYSORE.**—Mine report for fortnight ending June 18: Oriental Lode, South Shaft. The 470 feet level north of shaft has been driven 4 feet 3 inches; total length, 91 feet 6 inches. Lode has improved in size, is now 3½ feet wide, assaying 12 dwts. 17 grains of gold per ton. The 470 shaft driven 5 feet 3 inches; total length, 100 feet 6 inches. Lode 3 feet wide, assaying 18 dwts. 20 grains of gold per ton. The 380 feet level north has been driven 4 feet; total length, 197 feet 1 inch. Lode is disordered a little, carrying quartz 6 inches wide, assaying 17 dwts. 15 grains of gold per ton. The 380 shaft driven 4 feet 3 inches; total length, 189 feet 9 inches. Lode 4 feet wide, assaying 1 ounce 8 dwts. 4 grains of gold per ton. The 280 crosscut east of shaft has been driven 5 feet 9 inches; total length, 240 feet. There is no change to note as yet. Prospecting Work. I am sending with this a report on the prospecting work now being carried out by Captain Williams.

**KEMPINKOTE.**—Superintendent's report for fortnight ending June 18: Garland's Shaft. No sinking has been done as we have been cutting hitches for the bearers to carry the top lift. This work is completed, and the 9-inch column is being raised. We shall have to stop the engine for a few days, in order to make the necessary alterations to it, 185 cross cut east has been advanced 89 feet, mak-

ing a total length of 80 feet 9 inches. We have just cut into what appears to be the lode; it is about 3 feet wide, and worth by panning 6 dwts. of gold to the ton. This is a most important discovery, about which I hope to be able to give you more particulars by next report. Henty's Shaft. Good speed is being made with the necessary alterations for changing the drawing lifts and fixing the plunger. 173 south drive has been advanced 16 feet 3 inches, making a total length of 59 feet 9 inches. The rock is hard, and there is no change to report. At the beginning of the fortnight our progress was delayed owing to difficulties with the boilers.

**MOUNT LYELL.**—The London committee have received the following report from the Melbourne board for the week ending May 24: Engine shaft 100 feet level. The south drive has been advanced 7 feet. The face is in schist rock, with a small vein of iron showing on the western side.—50 feet level. The south drive has been advanced 8 feet, total 126 feet. This drive is being driven part in pyrites and part in the country rock. The eastern edge of the pyrites at this point are of better grade than usual.—Winze. The winze has been sunk 6 feet. The sinking is in iron, easy to work.—Stopes. The stopes at each end of the ore shoot have been worked as usual, and continue to furnish rich ore.—No. 2 shaft 100 feet level. The crosscut west has been driven 5 feet, total 42 feet. The face is still in hard rock.—No. 5 tunnel. The contractors have driven 14 feet for the week, total 600 feet. The face is all in shooting ground now.—Ore raised, 176 bags of ore weighing 11 tons, containing 10,032 ounces of silver and 2 tons 17 cwt. 22 lbs. of copper, or an average of 912 ounces of silver and 26 per cent. of copper have been raised, bagged, and sampled.—Ore despatched. 175 bags, weighing 11 tons 1 cwt. 1 ounce, containing 10,553 ounces of silver, and 2 tons 15 cwt. 2 grains 6 lbs., have been despatched from the mine.

**MOUNT ZEEHAN (Tasmania).**—Manager reports for week ended May 25: Argent section, main engine shaft No. 6 lode, intermediate level south stope, ore raised 33 tons 16 cwt. good seconds, and during past three weeks 15 tons 15 cwt. first. Lode averages 1 foot 6 inches wide. 72 feet level south extended 13 feet 6 inches, total 152 feet 6 inches. Ore raised 5 tons 17 cwt. low quality seconds. Lode formation about 2 feet wide. Stope south of rise ore raised 68 tons 15 cwt. medium seconds. Lode in south end 8 feet wide, but split up.—South west branch. Have risen 4 feet. Ore raised 5 tons 17 cwt. from rise on No. 4 lode 9 tons 15 cwt. fair seconds. No. 2 level south extended 9 feet, total 100 feet 6 inches. Ore raised 13 tons medium seconds. Lode formation 4 feet 6 inches wide. Cross cut to No. 7 lode extended 9 feet 6 inches, total 55 feet. No change.—No. 3 lode No. 2 shaft 60 feet level. Have driven north 19 feet. Lode 4 feet wide, of a strong character, with well defined walls. Ore raised 16 tons 5 cwt. medium seconds. Concentrator has been run 44 hours, and milled 153 tons 15 cwt. seconds for 40 tons 12 cwt. concentrates, including prills, containing about 27 tons 19 cwt. lead and 3142 ounces silver.

**MYSORE WEST AND MYSORE WYNAD.**—The mining manager in India reports by mail under date June 19:—North shaft, 350 feet level north crosscut east has been driven 13 feet; total 27 feet. There is no change here. South shaft has been sunk 1 foot; total 401 feet 6 inches. 400 feet level north crosscut west driven 4 feet; total 32 feet. This having passed through the lode formation the driving has been stopped.—400 feet drive north from crosscut west. This has been started and 20 feet has been driven. There is a nice lode in this drive averaging 2 feet in width, and averaging 4 ounces of gold for the last eight assays, which shows a very marked improvement in the value of the lode in the 354 feet level above. This level will be pushed on as fast as possible, and should open up a section of good stopping ground. 354 feet level north driven 17 feet 9 inches; total 219 feet 9 inches. As there has been very little quartz in the face lately we have suspended driving and put in a crosscut to the west.—354 feet crosscut west. This has been started and driven 4 feet 9 inches. There is already a change in the ground indicating the probability of more quartz being found within the next few feet. 354 feet level north winze sunk 5 feet 6 inches. The chamber for this winze has been completed and the bottom of the winze is now in the lode. When the footwall is reached the winze will follow the underlie of the lode. The quartz is of good quality, and assayed this week 1 ounce 14 dwts.—General remarks: The quartz from the 400 feet level north in the north shaft and from the 354 feet level winze is being stacked for the mill.

**CHAMPION REEF.**—Fortnightly report of Captain James Rowe, superintendent, dated June 18:—Dalyell's Shaft. The 685 feet level north has been driven 34 feet, total length, 110 feet. This is communicated with winze sunk below 620 north, and is suspended for a time.—Garland's Shaft. This has been sunk 12 feet; total depth, 695 feet 3 inches. The 630 north of crosscut west of shaft has been driven 24 feet; lode 6 feet wide, assaying 1 ounce 15 dwts. 10 grains of gold per ton. 630 south of crosscut driven 22 feet 6 inches; lode 6 feet wide, assaying 1 ounce 5 dwts. 16 grains of gold per ton. The 530 feet level north of west crosscut driven 27 feet 6 inches; total length, 493 feet 9 inches; lode 3½ feet wide, assaying 1 ounce 10 dwts. of gold per ton. New rise No. 4 in back of level risen 13 feet; lode 4 feet wide, assaying 1 ounce 6 dwts. of gold per ton. Winze below 530 south of west crosscut sunk 29 feet 6 inches, total depth 104 feet. Lode 3½ feet wide, assaying 1 ounce 18 dwts. of gold per ton. The 440 feet level north of west crosscut driven 16 feet 6 inches, total length 448 feet. Lode 5 feet wide, assaying 1 ounce 17 dwts. of gold per ton. No. 2 rise in back of level risen 14 feet, total height 73 feet 9 inches. Lode 4 feet wide, assaying 1 ounce 2 dwts. 12 grains of gold per ton. Rise in back of 440 south of west crosscut risen 8 feet 6 inches, total height 100 feet. This is communicated with winze sunk below 340 south of west crosscut. The 340 feet level south of No. 2 west crosscut at 340 north has been driven 19 feet 6 inches, total length 19 feet 6 inches. Lode 1 foot 9 inches wide, assaying 1 ounce 15 dwts. of gold per ton. Winze below 340 south of west crosscut sunk 7 feet 6 inches, total depth 35 feet 9 inches. This is communicated with rise in back of 440 south of west crosscut. New rise No. 3 in back of 340 north of west crosscut risen 20 feet. Lode 3 feet wide, assaying 1 ounce 18 dwts. 20 grains of gold per ton. Rise in back of the 340 south of west crosscut north of shaft risen 13 feet 9 inches, total height 72 feet 6 inches. This is up to the dyke and suspended. No. 2 winze below 340 north of west crosscut sunk 5 feet, total depth 91 feet. Lode 3½ feet wide, assaying 1 ounce 3 dwts. 14 grains of gold per ton. No. 1 rise in back of 240 north of west crosscut risen 1 foot, total height 42 feet 11 inches. This is up to the dyke and suspended. Winze in bottom of level sunk 4 feet 6 inches, total depth 14 feet. Lode 3 feet wide, assaying 18 dwts. 8 grains of gold per ton.—Ribblesdale's Shaft. This has been sunk 14 feet 9 inches, total depth is 546 feet 6 inches. Lode 6 inches, assaying 2 ounces 10 dwts. of gold per ton. We have to-day started to drive the 540 feet levels north and south of shaft. The 440 feet level south of shaft has been driven 23 feet 1 inch, total length 304 feet 6 inches. Lode small, yielding a trace of gold. Crosscut west of 440 north of winze sunk below 340 north of shaft on fold has been driven 14 feet 3 inches, total length 37 feet 9 inches. At this point we intersected the west part of the lode. Level north of crosscut has been driven 20 feet. Lode 6 feet wide, assaying 2 ounces 10 dwts. 13 grains of gold per ton. The 340 feet level south driven 18 feet 1 inch, total length 657 feet 6 inches. Lode 9 inches wide, assaying 1 ounce 15 dwts. 20 grains of gold per ton. Winze below level sunk 9 feet, total depth 84 feet 6 inches. Lode 9 inches wide, assaying 1 ounce 10 dwts. 13 grains of gold per ton. Rise above level risen 13 feet, total height 63 feet 9 inches. Lode 1 foot wide, assaying 1 ounce of gold per ton.—Carmichael's shaft. Rise in back of 315 north of shaft risen 11 feet; total height, 47 feet 6 inches. Lode 2 feet 3 inches wide, assaying 1 ounce 2 dwts. 3 grains of gold per ton. New winze below level, sunk 5 feet 9 inches. Lode 2 feet wide, assaying 1 ounce 16 dwts. 9 grains of gold per ton. The 315 crosscut west of shaft driven 28 feet 9 inches; total length, 349 feet 3 inches. Nothing as yet met with.—Rowe's shaft. This has been sunk 11 feet; total depth below the 315 feet level, 31 feet 3 inches. Lode 2½ feet wide, assaying 3 ounces 5 dwts. of gold per ton. 315 north of shaft driven 21 feet; total length, 80 feet 9 inches. Lode 1 foot wide, assaying 2 ounces 10 dwts. of gold per ton.



**TWIN LAKES PLACERS.**—The managing director reports that during the month of June 170,000 cubic yards of gravel were washed, and 100 tons of gold were produced of the estimated value of \$14,297, of which \$5,000 have been remitted by draft to London, together with a gold bar valued at \$2800. Further part of the above yield, consisting of another gold bar valued at \$2800, has been expressed to New York, proceeds to be remitted to London. He adds, "railway traffic is suspended, we have no mails."

**MOODIE'S.**—Returns from the company's property for the month of June, 1894: Claims rented or leased from the company, 253; number of tons crushed by claimholders, 720; yield of gold, 670 ounces.

**NO. 7 NORTH-EAST QUEEN.**—The following fortnightly report has been received from the mine, dated Charters Towers, May 25: During the fortnight McFadden and party have crushed 183 tons for 9 ounces 15 dwts. 18 grains of gold from over the No. 4 west level. Hall and party under No. 1 level west have worked their block out, but have not crushed yet. Perry and party still have from 10 to 15 inches of stone in their face under the No. 3 eastern level. Roberts and party are putting through about 75 tons from the stulls over No. 3 level. Total amount of stone raised during the fortnight by the various parties 40 tons.—(Signed) H. Davis.

**PALMAREJO.**—Mill return for the months of May and June: Mill treated 870 tons, producing \$30,599; expenses for two months \$44,226. The rainy season has now set in, and the mill has been in full work since the 2nd July.

## BAYLEY'S REWARD CLAIM GOLD MINING COMPANY.

Mr. SYLVESTER BROWNE'S REPORT.

THE following report, dated May 15, has been made by Mr. Sylvester Browne, one of the directors, on his return from a visit to the mines:—

At the date of my arrival Sylvester shaft had been sunk to a depth of 230 feet. In opening out at 230 feet the north leg, Bayley's reef, was met with almost immediately. This proved to be a splendid body of quartz 9 feet 6 inches wide, and showing a good deal of iron pyrites and coarse gold, apparently in very payable quantities. Specimens brought down with me will give some idea of the quality. The large block came from about the centre of the reef, and other specimens from various parts taken along the drive for 33 feet, when we met with the fault. We have since continued sinking in Sylvester shaft, and at 240 feet the north leg was cut, still showing excellent gold. Samples brought being from the shot fired the day I left (April 27) in the bottom of the shaft. On meeting the fault we followed it west, and in 12 feet cut another body of quartz which we took for the south leg. However, from wires received since from the mine, I fancy the larger portion of the reef was further west, as about 17,000 gallons per day is now coming from the western side, indicating more reef ahead. We have done no driving north on the north leg, as we can scarcely keep the drive clear as it is with one cage. I consider the opening out of the reef at the 220 feet level most satisfactory.

**100 feet Level.**—At this level overhead stopes are being worked up and very rich gold broken out, the best of which goes under our two stamps, and the balance is dropped in the drive to be sent up later. All the stone so left should be very payable. The reef in these stopes is very fine, being from 5 feet to 8 feet wide, and showing every sign of permanency. A winze from the 50 feet level has just been holed through to the 100 feet level the day I left. No stopping north of Gordon shaft has been done at the 100 feet level, and there is a large body of stone there to come out, and which, no doubt, will be very payable when we get our full battery going.

**50 feet Level.**—This has been stopped nearly to the surface, driving south, though there is still a block of ground about 12 feet high by 50 feet long, and carrying very rich gold. No stopping has been done here north of Gordon shaft where gold is showing and awaiting stopping.

**Begelhole Shaft.**—Stopping here going on both north and south on the north leg at the 50 feet level. The reef is about 8 feet wide and shows very rich stone. A large quantity of gold should come from here. At about 70 feet the reef has faulted but turned up again at the 100 feet level driving west. Mr. Matthews intends putting a crosscut in at the 150 feet level, and we should get hold there in the north leg. We were, when I left, getting gold at the four points being worked, which is most satisfactory. On the lease now called 133 we started a drive south in Everard shaft at 50 feet to find the run of gold passed through by Begelhole whilst sinking the shaft. Just as I left some nice stones showing gold freely was brought over, and I think it likely it has since improved. Cockshot shaft was down about 25 feet in a good reef. We have since heard good gold has been found in this shaft.

**General Management.**—The two great questions at present are water and haulage of mine timber and firewood.

**Water.**—Though I do not think from our explorations to date that we shall get a large supply of water from our actual workings, still I think that by striking in water channels contiguous, and by excavations, we shall get enough to run over 20 head of stamps, if not more. Tapping the last water reported by Matthews looks well, also the water in Gorrie's reef, No. 1 south, which being in a water channel is very much stronger than at any similar depth in the Reward. Again the Consols has a shaft down 120 feet in country rock, but in a water channel, and were getting about 1000 gallons a day. The Government bore 1½ miles from the Reward is making about 9000 to 12,000 gallons, and there should be other soaks in the neighbourhood of equal or greater capacity if bored for. There is a large flat close to Bayley's in which, I feel confident, a large supply of water would be found if bottom were touched. The Government bore has been down here to 307 feet, with no bottom, but lignite and iron pyrites showing at the lowest depths. There are also plenty of floors where large water schemes might be successfully carried out and immense bodies of rain impounded. I consider the water question one of time and money to be overcome. I found a good dam and excavation just completed as I arrived, but with insufficient drains to carry the rainfall in. I at once instructed Mr. Gerald Browne to complete these, which he did in a very efficient manner. Plans of the work will be supplied by him.

**Haulage.**—It is impossible to get this done cheaply at present, horse feed being so terribly dear—6d. per pound the usual price for chaff or oats. For this reason I bought 18 bullocks and a wagon, and if only rain would fall there will be an immense saving. Bullocks and camels are the only animals at present fitted for Coolgardie, and I would suggest the purchase of seven camels now there belonging to Mr. Everard Brown, and having them broken to draught, sending the harness from Adelaide.

**Book-keeper.**—I engaged a good book-keeper for three months to open a proper set of mine books. He will also have charge of all stores, and check and take delivery of all articles whatever purchased for the mine. Before I left the whole working of the mine was put on a thorough working footing, and I left instructions with Mr. Matthews to discharge all hands not actually needed and to economise in every way. This, I feel sure, he will do. In conclusion, I may say that, in my opinion, the mine looks better than at any period of its working, as gold was coming from all parts of the mine, to its deepest level, and it was still bearing the strain of 500 ounces per week with two head of stamps, which pressure, I hope, will soon be over, by our being able to utilize more stamps and treat a lower average of ore. We have large reserves of this ready to treat, and that already on the surface should give us at least 10,000 ounces, with enormous quantities to follow by stopping the different levels. Our second ten head of stamps should soon be delivered, most of it was when I left, though the stoppage by Government of all but provision teams delayed the delivery greatly.

## EXPORT AND IMPORT TRADE.

### THE BOARD OF TRADE RETURNS—JUNE TABULAR STATEMENT.

Specially compiled for "The Mining Journal" from the Board of Trade Returns.

THE Board of Trade returns for the month of June, show that during the month the value of Imports amounted to £34,250,033, against £31,869,592, an increase of £2,380,441. The value of Exports was £17,909,155, against £18,785,271 in the preceding June, a decrease of £876,116. The Imports for the six months ended June 30 totalled £211,031,597, compared with £197,681,660 in the corresponding period last year, an increase of £13,349,937. The Exports for the six months totalled £106,883,475, against £107,777,940, a decrease of £894,465.

#### EXPORTS—SUMMARY OF INCREASES AND DECREASES

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	INCREASE.	DECREASE.	INCREASE.	DECREASE.
Raw Materials:				
Coal and Patent Fuel ... Tons	70,536	—	£129,779	£ —
Coal, &c., shipped for steamers' use ... Tons	91,737	—	—	—
Metals:				
Brass, and manufactures of	—	2,299	—	9,705
Copper, unwrought and wrought ... Cwts.	—	41,020	—	122,907
Hardware and cutlery ... Cwts.	—	—	—	22,146
Iron, unwrought and wrought ... Tons	—	—	—	10,198
Lead, pig, rolled, &c. ... Tons	447	36,107	1,061	408,484
Plate, and plated gilt wares & Telegraph Wires, &c. ... Cwts.	—	—	2,742	—
Tin, unwrought ... Cwts.	—	5,827	313,374	—
Zinc or Spelter ... Cwts.	7,422	—	2,923	33,525
OTHER ARTICLES ... £	—	—	—	10,750
Total ...	—	—	320,095	623,713
Machinery:				
Steam engines ...	—	—	—	20,372
Other descriptions ...	—	—	28,290	—
Total ...	—	—	28,290	20,372
Alkali ... Cwts.	—	41,668	—	32,154
Cement ... Tons	784	—	—	3,734
PRODUCTS OF COAL ... £	—	—	11,257	—

#### EXPORTS—BRITISH AND IRISH PRODUCE.

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended June 30.	Month ended June 30.	1893.	1894.
Metals and Articles Manufactured therefrom (except Machinery):—				
Brass, and Manufactures of, not being Ordnance ...	12,383	10,034	45,600	35,895
Copper: Unwrought, in Ingots, Cakes, or Slabs, and Precipitate:				
To Germany ...	20,816	8,491	51,250	18,993
" Holland ...	13,400	9,834	29,804	6,789
" Belgium ...	4,381	2,705	10,371	6,199
" France ...	13,488	5,771	33,411	13,946
" Italy ...	2,949	3,581	7,359	7,928
" British East Indies ...	259	25	851	458
" Other countries ...	5,820	6,432	14,478	13,992
Total ...	61,123	37,012	147,334	82,286
Wrought, or Manufactures, unenumerated:				
To Sweden and Norway ...	1,475	1,237	4,428	3,559
" Germany ...	3,323	3,8	10,174	1,040
" Turkey ...	5,573	3,320	16,020	10,030
" Egypt ...	727	3,070	3,059	7,910
" Brazil ...	1,537	2,984	4,682	7,891
" British East Indies ...	12,855	2,674	32,435	6,555
" Australasia ...	642	592	2,145	1,755
" Other countries ...	9,631	5,424	29,422	15,894
Total ...	25,968	20,123	101,340	64,789
Mixed or Yellow Metal:				
To China and Hong Kong ...	3,949	5,472	9,206	11,709
" British East Indies ...	13,693	4,858	31,114	10,668
" Other countries ...	5,521	6,768	13,987	21,203
Total ...	23,163	19,196	54,287	42,980
Total of Copper ...	120,254	76,234	302,961	187,054
Iron and Steel: Pig-iron:				
To Russia ...	20,917	21,879	54,346	52,173
" Sweden and Norway ...	2,823	3,244	4,290	6,389
" Denmark ...	1,977	1,9	4,449	3,589
" Germany ...	21,641	19,164	42,297	37,902
" Holland ...	8,223	10,578	17,265	23,228
" Belgium ...	2,789	3,93	7,562	8,593
" France ...	2,586	3,937	5,092	8,769
" Portugal, Azores, and Madeira ...	1,126	1,228	2,067	2,307
" Spain and Canaries ...	843	2,530	2,202	6,840
" Italy ...	7,577	15,890	25,128	23,319
" United States ...	4,149	991	16,338	5,589
" Australasia ...	1,696	1,455	4,058	3,401
" British North America ...	2,770	871	6,733	2,227
" Other countries ...	3,316	8,015	7,851	16,991
Total ...	81,851	96,498	189,223	210,328
Bar, angle, bolt, and rod	15,54	10,025	91,969	64,875
Railroad of all sorts	68,980	50,014	311,084	218,698
Iron and steel wire, &c.	3,801	2,776	61,764	81,245
Galvanised sheet	15,442	13,566	188,531	154,746
Hoops, plates, boiler plates, &c.	14,330	14,133	116,434	108,662
Cast and wrought iron, &c.	26,478	22,922	339,318	293,957
Old, for re-manufacture	13,845	4,694	39,033	11,021
Steel, unwrought	16,469	17,629	164,508	168,473
Manufactures of steel, or of iron and steel combined ...	2,316	2,062	51,626	47,121
Total of Iron and steel ...	236,264	260,157	2,053,106	1,644,622
Tin Plates and Sheets:				
To Russia ...	1,732	1,771	21,570	13,251
" Germany ...	421	268	5,343	3,599
" Holland ...	691	298	9,089	4,085
" France ...	693	615	9,408	7,781
" Portugal, Azores, and Madeira ...	527	133	6,980	1,555
" Italy ...	213	304	2,960	3,106
" Roumania ...	744	414	10,216	5,633
" United States ...	26,759	17,247	351,829	209,489
" Brazil ...	470	518	6,145	5,983
" Argentine Republic ...	185	254	2,082	4,385
" British East Indies ...	603	447	6,370	6,074
" Australasia ...	621	1,210	8,481	14,597
" British North America ...	1,951	1,178	28,534	14,168
" Other countries ...	1,991	1,743	27,913	22,788
Total ...	37,418	25,758	496,886	316,493
Lead: Pig Sheet, Piping, and Manufactures:				
To Russia ...	1,784	2,920	17,565	27,320
" Germany ...	99	193	1,057	1,835
" China and Hong Kong ...	733	103	7,773	946
" Japan ...	104	—	1,502	1,250
" United States ...	517	590	8,089	8,675
" British East Indies ...	11	—	142	—
" British North America ...	258	33	2,854	395
" Other countries ...	1,030	1,133	11,416	11,695
Total ...	4,644	5,091	61,107	52,288

#### BRITISH AND IRISH PRODUCE—Continued.

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended June 30.	Month ended June 30.	1893.	1894.
Plate and Plated & Gilt Wares: Telegraphic Wires, & apparatus connected therewith ...	—	—	18,942	21,584
Tin, unwrought:				
To Russia ...	3,213	2,503	14,844	9,778
" Sweden and Norway ...	819	451	3,720	1,758
" Germany ...	931	612	4,204	2,223
" France ...	1,549	806	7,146	2,986
" Turkey ...	1,292	434	5,905	1,658
" United States ...	607	401	2,751	1,504
" British North America ...	834	380	3,851	1,241
" Other countries ...	4,584	2,394	21,593	9,049
Total ...	13,834	8,007	63,714	30,189
Zinc or Spelter: Unwrought and Wrought ...	13,638	21,063	11,291	14,211
Total of Principal Articles ...	—	—	2,857,218	2,864,350
Total of Metals and Articles Manufactured therefrom (except Machinery) ...	—	—	2,924,051	2,620,433
Alkali ...	451,371	469,703	151,397	119,243
Cement ...	48,883	49,567	63,504	79,770
Products of coal (including paraffin, petroleum, &c.) ...	—	—	91,266	102,523

#### MACHINERY.

PRINCIPAL ARTICLES.	QUANTITIES.		VALUES.	
	Month ended June 30.	Month ended June 30.	1893.	1894.
Mining: (Not Steam Engines.)				
To Countries in Europe ...	—	—	4,418	2,325
" United States ...	—	—	—	50
" Countries in South America ...	—	—	2,121	958
" British Possessions in S. Africa ...	—	—	14,065	27,382
" East Indies ...	—	—	3,860	2,800
" Australasia ...	—	—	522	122
" Other Countries ...	—	—	4,703	4,074
Total ...	—	—	29,689	38,191
Total of Machinery other than Steam Engines ...	—	—	997,258	1,025,543
Total of Steam Engines ...	—	—	331,194	210,922
Total of Machinery and Mill Work ...	—	—	1,328,452	1,236,370

#### EXPORTS OF FOREIGN AND COLONIAL MERCHANDISE.

PRINCIPAL ARTICLES.	QUANTITIES.		VALUES.	
	Month ended June 30.	Month ended June 30.	1893.	1894.
Copper:				
Unwrought and part wrought	1,039	691	48,651	28,657
Iron and Steel:				
Bar, angle, bolt, and rod	3,705	1,172	30,282	8,816
Steel, unwrought	359	155	4,225	969
Manufactures:				
Girders, beams, and pillars	206	60	1,235	359
Unenumerated	94,725	49,545	57,876	33,849
Petroleum ...	114,307	105,797	5,244	4,703
Quicksilver ...	118,033	175,565	10,818	13,978
Salt-petre ...	1,241	7,185	1,660	6,194
Tin, in blocks, ingots, bars, or slabs ...	52,009	37,637	236,648	134,448

#### IMPORTS

##### SUMMARY OF INCREASES AND DECREASES.

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUE.	
	Increase.	Decrease.	Increase.	Decrease.
Metals:			£	£
COPPER: Ore ... Tons	318	—	—	11,126
Regulus ...	—	3,754	—	109,129
Unwrought and part wrought ...	3,803	—	141,553	—
IRON: Ore ... „	77,654	—	47,338	—
Bar ... „	—	2,870	—	24,449
Steel, unwrought ...	—	32	—	410
LEAD: Pig and sheet ...	—	2,674	—	28,584
PYRITES of iron or copper ...	—	1,008	—	1,416
QUICKSILVER ... Lbs.	—	23,405	—	9,277
SILVER ORE ...	—	—	2,830	—
TIN, in blocks, &c. ... Cwts.	6,014	—	—	8,225
ZINC, crude ... Tons	23	—	—	730
OTHER ARTICLES ...	—	—	16,753	—
Total ...	—	—	208,474	199,996
Chemicals:			199,996	—
ALKALI ... Cwts.	20,998	—	8,478	—
BRIMSTONE ... „	—	10,923	—	2,791
SALTPETRE ... „	—	431	1,120	—
Iron Manufactures:				
Beams, girders, &c. ... Tons	—	598	—	5,144
Unenumerated ... Cwts.	—	10,689	7,105	—
ZINC MANUFACTURES ...	1,758	—	—	436



## PROVINCIAL SHARE MARKETS.

## THE CORNISH MINE SHARE MARKET.

**M**R. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of July 12 (4 o'clock) as follows:—We have had a dull inactive market this week, with no improvement in prices, and there is little or nothing doing to-day. Following are quotations:—Blue Hills,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Carn Brea,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Cook's Kitchen,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Dolcoath, 68 to 67; East Pool,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Killifreth, 3 to 3 $\frac{1}{2}$ ; Polberro,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; South Condurrow,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; South Crofty, 1 to 1 $\frac{1}{2}$ ; South Wheal Frances,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Tincroft, 10 to 10 $\frac{1}{2}$ ; West Frances,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; West Kitty,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Wheal Agar, 1 to 1 $\frac{1}{2}$ ; Wheal Basset, 1 to 1 $\frac{1}{2}$ ; Wheal Grenville, 15 to 16 $\frac{1}{2}$ ; Wheal Kitty (St. Agnes),  $\frac{1}{2}$  to  $\frac{3}{4}$ .

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Lakeard, Cornwall, writes (July 12) as follows:—The mining market is without any improvement on the continued dullness of the day, and prices generally show a further depression:—Closing prices:—Blue Hills, 7s. to 8s.; Carn Brea, 6 $\frac{1}{2}$  to 7; Cook's Kitchen,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Devon Consols,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Dolcoath, 65 $\frac{1}{2}$  to 66; East Pool,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Killifreth, 2 $\frac{1}{2}$  to 3; Phoenix United,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Polberro,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; South Crofty, 1 to 1 $\frac{1}{2}$ ; South Frances,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Tincroft,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; West Frances, 2 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; West Kitty, 5 $\frac{1}{2}$  to 6; Wheal Agar,  $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; Wheal Basset, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Wheal Grenville, 15 to 16 $\frac{1}{2}$ ; Wheal Kitty, 7s. to 8s.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers, and Mining Share Dealers, Redruth, write under date of Thursday, July 12:—The continued weakness in tin has had a depressing effect on the Cornish share market, and the tendency generally is lower, though business is still restricted. Killifreth has been chiefly dealt in. Quotations herewith (four o'clock):—Blue Hills,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Carn Brea,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Cook's Kitchen,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Dolcoath, 65 to 66; East Pool,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Killifreth, 2 $\frac{1}{2}$  to 3; Polberro,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; South Condurrow,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; South Crofty, 1 to 1 $\frac{1}{2}$ ; South Frances,  $\frac{1}{2}$  to  $\frac{3}{4}$ ; Tincroft, 9 $\frac{1}{2}$  to 10 $\frac{1}{2}$ ; West Frances, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; West Kitty, 5 $\frac{1}{2}$  to 6; Wheal Agar,  $\frac{1}{2}$  to 1 $\frac{1}{2}$ ; Wheal Basset, 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; Wheal Grenville, 15 to 16 $\frac{1}{2}$ ; Wheal Kitty,  $\frac{1}{2}$  to  $\frac{3}{4}$ . Tin, 67 $\frac{1}{2}$ .

## MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write, July 12, 1894 (noon):—With few exceptions the several departments of the market show lower prices in majority. This is particularly noticeable in railways, there having been a considerable amount of liquidation going on in accounts open for the rise in several of the railway sections. Beyond the business due to this liquidation there does not appear to have been much going on, and, though at the drops stocks thrown over are said to have gone into strong hands, there has been no demand sufficient to put back prices to any appreciable extent. This last remark applies generally, but Scotch stocks are an exception this week, particularly Caledonians. There are no advances on the week to notice except in Scotch stocks, whilst declines in home rails are general on balance, after some fluctuations, South Eastern showing 2 down, and ranging down to  $\frac{1}{2}$  in Sheffield deferred. Brighton A have moved in fairly wide limits, and finish on the week  $\frac{1}{2}$  down. Sheffield A have dropped about a bit, but finish, as we have said, with but slight change from a week ago. Americans have at times been very flat, as the news of the strike proceedings have come forward; but most latterly on some appearance of an amelioration of the position, figures have mended somewhat. Still on balance, prices are all down where change is made, the declines being as follows, viz.:—New York Central  $\frac{1}{2}$ , Atchison Income Bonds  $\frac{1}{2}$ , Denver Preference  $\frac{1}{2}$  to  $\frac{3}{4}$ , Atchison Ordinary  $\frac{1}{2}$ , Union Pacific  $\frac{1}{2}$ , and Ontario  $\frac{1}{2}$ , and a lot of others smaller in amount. In Canadian, Trunk issues are all lower, ranging from  $\frac{1}{2}$  each in first and second preference, down to  $\frac{1}{2}$  in ordinary. Pacifics do not show any alteration on the week. Mexican rails are lower, the second preference  $\frac{1}{2}$  to 2, first preference  $\frac{1}{2}$  to  $\frac{3}{4}$ , and ordinary  $\frac{1}{2}$ . Consols retain the strength they have exhibited for some time back, and quote  $\frac{1}{2}$  higher on the week. Colonial Government bonds, &c., show but few alterations, and these are confined to declines of  $\frac{1}{2}$  each in New South Wales Consolidated, New Zealand Inscribed, and Victoria Inscribed. Appreciation continues in Home Corporation Stocks and Bonds. Bristol Three and a-half per cent. is 1, Blackburn Three and a-half per cent.  $\frac{1}{2}$ , Hull Three and a-half per cent.  $\frac{1}{2}$ , and Nottingham Three per cent.  $\frac{1}{2}$  higher, whilst there are no instances where decline has to be noted. Foreigners have a downward move on the whole, though the extent of decline is in no case of much moment, Russian Four per cent. is  $\frac{1}{2}$ , Portuguese Three per cent.  $\frac{1}{2}$ , and Egypt Unified  $\frac{1}{2}$  higher. Lower Argentine Six per cent.  $\frac{1}{2}$  to 1 $\frac{1}{2}$ , ditto Five per cent.  $\frac{1}{2}$ , Brazilian Four and a-half per cent.  $\frac{1}{2}$  to  $\frac{3}{4}$ , Italian Rentes  $\frac{1}{2}$  to  $\frac{3}{4}$ , Mexican Six per cent.  $\frac{1}{2}$ , Spanish Four and a-half per cent.  $\frac{1}{2}$ , and Uruguay Three and a-half per cent.  $\frac{1}{2}$ . Miscellaneous classes furnish but a very meagre list of transactions, and lower prices are the rule, not, however, without a respectable minority of changes on the favourable side.

BANKS, with a comparatively fair record of business done, are lower in some instances, with only one advance as a set off.—Higher: Imperial of Persia  $\frac{1}{2}$ .—Lower: National and Provincial  $\frac{1}{2}$ , Bank of Liverpool  $\frac{1}{2}$ , Union of Manchester  $\frac{1}{2}$ , and Imperial Ottoman  $\frac{1}{2}$ .

INSURANCE business almost nil. As regards quotations the following are the variations:—Higher: Ocean Marine  $\frac{1}{2}$  to  $\frac{3}{4}$ , Thames and Mersey 3-16.—Lower: Commercial Union  $\frac{1}{2}$ , Manchester Fire 1-16, and Equitable Fire, &c., 6d. to 1s.

COAL, IRON, &c.—A few isolated markings in Ebbw Vale, and a solitary deal in Bolckow are all the transactions recorded. Rhymney Iron are 6d, and Dorman, Longs,  $\frac{1}{2}$  better, but Bolckows Ordinary (£12 paid) are 1-16 to  $\frac{1}{2}$  easier.

MINES are all lower where altered, and hardly anything going on here. Tintos are  $\frac{1}{2}$ , Goregum Ordinary  $\frac{1}{2}$ , ditto Preference  $\frac{1}{2}$ , Mysore  $\frac{1}{2}$ , and De Beers  $\frac{1}{2}$  down.

COTTON SPINNING, &c., shares furnish no feature of change to record.

TELEGRAPHS, &c.—Eastern issues and Eastern Extension are each  $\frac{1}{2}$  higher, but Anglo-American Telegraph issues are 2 on Preference, 1 to 2 on Ordinary, and  $\frac{1}{2}$  on Deferred, and Direct U.S. Cable  $\frac{1}{2}$  lower. National Telephone issues are lower, presumably on the prospect before them on the expiry of their concessions.

BREWRIES.—Alsop's again a feature this week. "Beers" have had a lively period, declines (with momentary rallies) being frequent, and the balance being fall of 10 on the week. Others, where changed, are better, Guinness being 2, Boddingtons  $\frac{1}{2}$  to  $\frac{3}{4}$ , Parker's Burslem  $\frac{1}{2}$ , and Chesters  $\frac{1}{2}$  to  $\frac{3}{4}$  better.

MISCELLANEOUS.—Ship Canals have come into some demand in the past few days, and though a little off the best (marked yesterday) to-day, they show advances on the week of  $\frac{1}{2}$  on the Ordinary and  $\frac{1}{2}$  on Preference issue. Brunner Monks are contradictory, as whilst the  $\frac{1}{2}$  paid are  $\frac{1}{2}$  up, the fully paid are a similar amount lower. Salt Unions are again easier, and United Alkali issues continue to slip downwards. Local Trust shares easier, as also are Henrys on the dividend announcement. Imperial Continental Gas 2 better again.

LATER (4 P.M.).—There has been rather a better tendency in Home Rails generally, and particularly in the Scotch stocks, but Brighton A and Midland are a bit off at the close. Nothing doing in Mexican Rails or in Canadian, Americans, after a firm opening, reacted somewhat on lack of support, the disposition being more to realise on the advance than to put prices better.

## SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (July 12), writes:—During the past week the markets have been quiet, in sympathy with the drooping state of the metal market. Prices are generally lower on sales to close accounts. The fort-

nightly settlement has been concluded, and transactions entered into are for new account, July 27.

In shares of coal, iron, and steel companies, prices are generally lower, although a more hopeful view is taken of a termination of the Scotch miners' strike. Bolckow Vaughan are at 10 $\frac{1}{2}$ ; Ebbw Vale, 8; Fifehire Main Collieries Preference, 42s. 6d.; Marbella Iron, 52s.; Niddrie, 36s. 9d.; Rhymney, 52s. 6d.; Steel Company of Scotland, 45s. 6d.; and Wilson and Clyde Coal, 9 $\frac{1}{2}$ .

In shares of copper concerns there has been little business doing, and prices are steady. Tharsis and Tinto unaltered. Arizona are at 5s. 6d., and Mason and Barry 46s.

In shares of gold and silver mines a fair amount of business has been done, and prices are generally lower on closing transactions. Montana, however, continue to improve, having risen from 11s. 3d. to 14s. Last month's output was \$70,100 and expenses \$48,850. Broken Hills declined to 50s. 6d. on rumours of a reduction in the returns, but have recovered to 51s. 9d. British South Africa Chartered touched 26s., Consolidated Gold Fields of South Africa 40s. 9d., Mysore 43s. 3d., Oregums 59s. 6d., but are now all better. American Belle, are at 3s.; African Recovery 35s.; Blue Spur, 1s. 3d.; Cassel, 19s. 6d.; Callao Bis, 1s. 3d.; Day Dawn P.C., 3s. 3d.; Don Pedro, 3s. 9d.; Kapanga, 3s. 3d.; Kempinkote, 3s. 3d.; Lisbon Berlyn, 2s. 9d.; Mozambique, 12s. 6d. to 15s.; Mysore Wynaad, 3s. 3d.; New Gaston, 17s. 6d.; Nine Reefs, 1s.; New Louis d'Or, 4s. 9d.; Otto's Kopje, 2s.; Orita, 2s. 9d.; Silver King, 4s.; St. Augustine, 1s.; Spitzkop, 4s. 6d.; Sunburst, 1s. 9d.; and West Argentine, 1s. 6d.

In shares of miscellaneous companies prices are steady. In oil companies Broxburn are at 8 1-16; and Young's 21s. Cheshire Alkali Preferred are at 15s.; Newfoundland Colonisation, 2s. 3d.; Nobel's Explosives 13 5-16, and Phospho Guano, 72s. 6d.

## EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of July 12:—The traffic returns of the three principal Scottish lines for last week show a decrease of £19,421. The prices of Caledonian Deferred and North British Railway Stocks have, however, advanced, the former 1 $\frac{1}{2}$ , and the latter  $\frac{1}{2}$ . High class investment stocks continue to be absorbed at increasing prices. In banks, Bank of Scotland have risen from 337 to 339, National from 335 to 336, Clydesdale from 21 $\frac{1}{2}$  to 21 $\frac{1}{2}$ , Union from 22 $\frac{1}{2}$  to 22 9-16. British Linen has declined from 388 to 387, Commercial from 67 $\frac{1}{2}$  to 67 $\frac{1}{2}$ , Royal from 238 to 236. Insurance shares quiet. Caledonian have improved from 28 $\frac{1}{2}$  to 28 $\frac{1}{2}$ . Northern have receded from 62 $\frac{1}{2}$  to 62. Scottish American Mortgage Shares have receded from 54s. 6d. to 53s. Scottish Reversionary have improved from 7 $\frac{1}{2}$  to £7 17s. Steel shares have declined from 46s. 6d. to 46s., John Watson from 12 $\frac{1}{2}$  to 12 1-16. Rio Tinto from 13 3-16 to 13s. Tharsis have improved from 8s. to 8s. De Beers have fallen from 16 $\frac{1}{2}$  to 15. Oregums from 67s. 3d. to 59s. 3d. Broxburn oil have been offered; at 8 1-16, a decline of 1s. 3d. Edinburgh Tramways have been wanted at 101s., a rise of 1s.

The following are the Witwatersrand Chamber of Mines totals and averages in connection with the May output—an elaboration of those given by us last week:—From mill: Quartz milled, 243,217 tons; total number of stamps working, 2350; average days milling, 27-35; average per stamp per diem, 3-78; total yield, 109,236 ounces 13 dwts.; average per ton, 8-98 dwts.; total value, £395,859; average per ton £1 12s. 6d. From concentrates: Total yield, 6229 ounces 11 dwts.; total value, £23,791. From tailings: Total tons treated, 228,291; total yield, 49,143 ounces 15 dwts.; average per ton, 4-36 dwts.; total value £146,572; average per ton, 12s. 4d. Total yield from all sources, 169,773 ounces 12 dwts. Total value, £584,311.

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## ALASKA TREADWELL GOLD MINING COMPANY.

The superintendent's annual statement.—The condition of the mine.

WRITING from Douglas Island, Alaska, under date May 15, Mr. Robert Duncan, jun., reports to the president of the Alaska Treadwell Gold Mining Company, San Francisco, California. We give a summary of his report.

Dear Sir,—I beg leave to submit my report on the operations of your company at Douglas Island during the year ended May 15, 1894, accompanied by a map of the mine, entered up to date.—The Mine: During the year there was mined from adit level 114,683 tons of ore, 110 feet level 105,360 tons of ore, making a total of 220,043 tons of ore mined, at a cost of \$132,010.35, or 60 cents per ton. There was also mined and trammed to waste dump during the year 20,355 tons of waste or slate, from slate horse, adit level, at a cost of \$3491.15, or 17 1-5th cents per ton, making a total of 240,398 tons mined during the year, at a cost of 55 cents per ton. This slate was trammed a distance of about two-thirds of a mile to waste dump.—Development work: Adit level: Drives, 589 feet; shoots, 320 feet.—110 feet level: Drives and crosscuts, 464 feet; shoots and upraises 234 feet. Total development work, 1607 feet. All of the above development work was done in payable ore, as per monthly assay statement, which shows the average value of the ore developed to have been \$4.21 per ton. This is the average of about 100 samples, taken promiscuously from the pile of ore, after being blasted from the drives and upraises. During the month of July last a mill test was made from No. 1 east drift upraise, 110 feet level (see map, Section E 17), which resulted as follows:—Ore milled, 561 tons; amalgam won, 504 ounces; bar gold, 156.75 ounces, 0.896 fine; valued at \$2903.32; concentrates saved, 15 tons; concentrates assay value, \$90.96; saved by chlorination works, 89 per cent.; loss by chlorination work, 11 per cent.; tailings from mill, 19 cents per ton; tailings from chlorination works \$2.09 per ton; bar gold from concentrates, \$1214.40; total bullion won from 501 tons of ore, \$4117.72; total bullion won per ton, \$7.34. The above ore came from the upraise close to the footwall of the vein, which accounts for its being of higher value per ton than the average of the ore crushed for the year. In every instance the highest grade ore is found close to the footwall of the vein in this mine.

## Reserves and Prospects.

Estimate of ore in sight: Adit level 220,000 tons, 110 feet level 1,980,000 tons, making a total of 2,200,000 tons. The ore in sight on the 110 feet level is figured from the present ends of our drifts No. 1 east and Nos. 1, 2, 3, and 4 west. The faces of these drifts are now in ore of average value; in fact, No. 1 east drift and No. 2 west are now in ore much above the average of the mine; for the last 25 feet in the latter drift the ore has been assaying from \$10 to \$14 per ton. The general appearance of the mine at this date in the lower or 110 feet level is very encouraging; the ore in the face of No. 2 west drift is very much higher in value than it was on the adit level immediately above. It is quite probable that the different drifts on the 110 feet level will extend from the main tunnel in the same ore for at least twice the distance estimated above, which would greatly add to the reserves. There is also a large body of low grade ore on the adit level west of our present workings on the north side of the slate horse—that is, in the vein—which will not pay to work at the present cost per ton, but this ore is not in the way of our present workings, therefore its removal is not necessary, and it may be mined at a later date at a profit. In removing the slate horse on the adit level during 1892-93 and 1893-94, a body of ore of about 250,000 tons was developed in sections 16, 17, 18, 19 and 20 (C.B.D.), which is not included in the foregoing estimate. It is reasonable to expect that this body of ore will extend to the 110 feet level, thus making 600,000 tons of ore developed by the removal of the slate horse. It is the intention, in the ensuing year, to equip the main shaft with two self-dumping skips to 30 cubic feet capacity each; also to raise the head gear about 40 feet, which will make it about 70 feet high. It is also proposed to place two No. 6 Gates' ore crushers at the shaft, and there do the rock breaking which is at present done in the mill. After the Gates' crushers are put in place it is also intended to sink the main shaft to another level, or about 140 feet deeper than it is at present, and from there crosscut through the vein. My judgment is that the ore will be found at the 220 feet level equally as good as it is at the 110 feet level.

## The Mill of 240 Stamps.

You will notice that the year's crushing is 220,043 tons, as against 237,235 tons crushed last year. This falling off of about 17,000 tons occurred during the winter, which was an extraordinarily rough one, and much against mining in this country; in fact, no such severe winter has been remembered in Alaska. Water was so scarce during three months that there was only enough for 100 stamps. The ditchmen report the snowfall for the winter on the ditch line to be 450 inches. This will give you an idea what the winter has been here. Throughout the year the mill machinery has been kept in good condition. When the new Gates' crushers are erected and at work, and the ore crushed somewhat finer than can be done with the present crushers, it is expected the milling capacity will be increased at least 50 tons a day. It is also expected to somewhat reduce the milling cost per ton.

## Chlorination Works.

With the exception of a few stoppages, caused by repairing and lack of sulphurets, during the severe winter months, this department has been fully employed during the year with three furnaces. The fourth furnace is now operating on concentrates from the Alaska Mexican Gold Mining Company. On the night of January 12, or morning of January 13, a robbery was committed in the works, which resulted in a loss of between \$7000 and \$8000. Two of the robbers were arrested, and are now in gaol waiting trial. About \$1500 of the stolen bullion was recovered. This robbery happened altogether through neglect of duty on the part of the man whose duty it was to watch the tub or vat containing the gold. During the year the works were equipped with a full set (or 16) of new leaching vats, also four precipitating tanks. There are now on hand in the sheds about 100 tons of concentrator.

## Mechanical.

During the year an addition to tools in machine shop was made of one bolt cutting, threading, and nut tapping machine, and one pipe cutting and threading machine. The hoisting and pumping machinery, air compressors, electric light plant, and mine locomotives have been kept in thorough repair throughout the year. The mill engines were a source of annoyance during the winter months, and this season will be reset and lined up and thoroughly overhauled for the coming winter. The lower end of the main water pipe line was replaced this month with new 18-inch pipe, made of No. 8 tank steel, which makes the line now safe and in good repair.

Note.—The total expenses for the year 1893-94, as shown by the following accounts, were a fraction over \$1.35 (about 1 1/2 dwt. of gold) per ton, or about the same cost as last year. Owing to the severity of the weather at Douglas Island during the winter and late this spring, superintendent Duncan is entitled to great credit in keeping the expenses down to \$1.35 per ton. You will note on folio 20 the yield from ore averages \$3.20 per ton, as against \$2.94 for the year previous; this improvement is due to the higher grade of the ore taken from the 110 feet level. The profit shown of \$129,948.86 exceeds that of any previous year. If the company had not met with a loss, by the robbery of chlorination works in January, of the estimated value of \$8000, and had ordinary winter weather prevailed, our profits would have been \$60,000 or \$70,000 more. During the year the company paid four regular quarterly dividends of \$75,000 each, and a bonus dividend of \$150,000 was declared and made payable on the 11th inst., making \$450,000 for the year; \$20,051.14 of this amount was deducted from surplus of \$140,802.85 carried over from last year, leaving now a surplus of \$120,751.71, as shown in balance sheet.—A. T. CORBUS, secretary; San Francisco, June 9, 1894.

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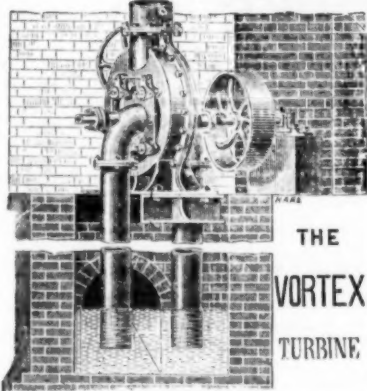
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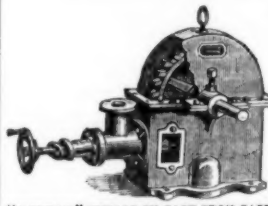
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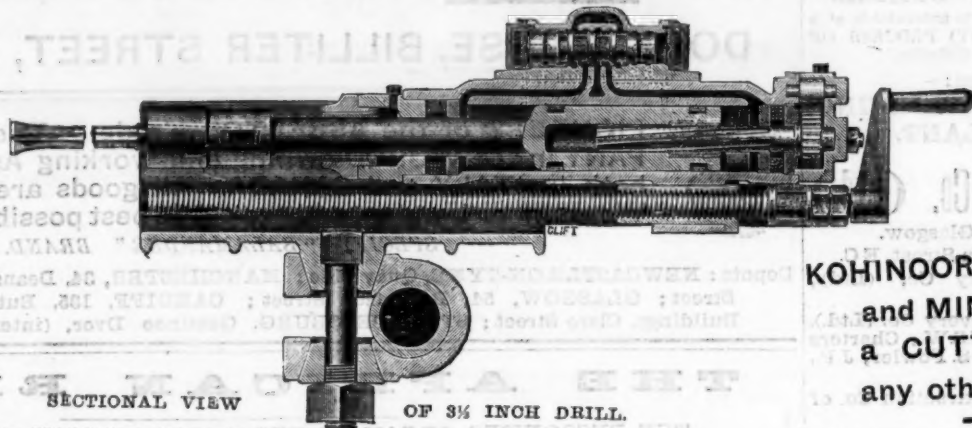


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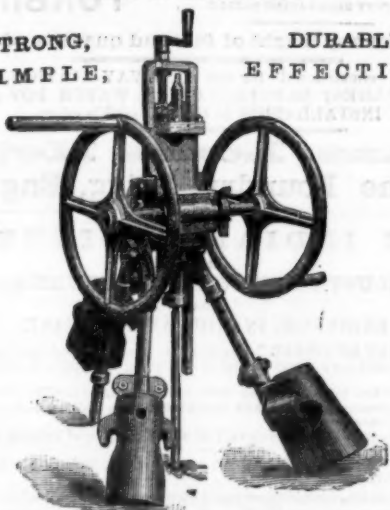
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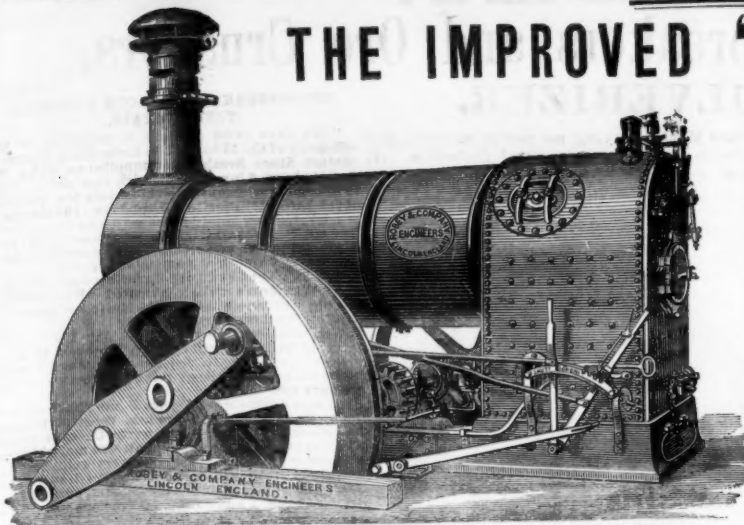
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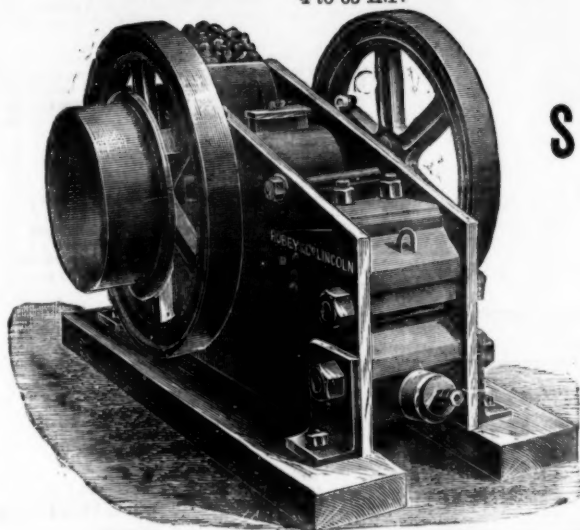


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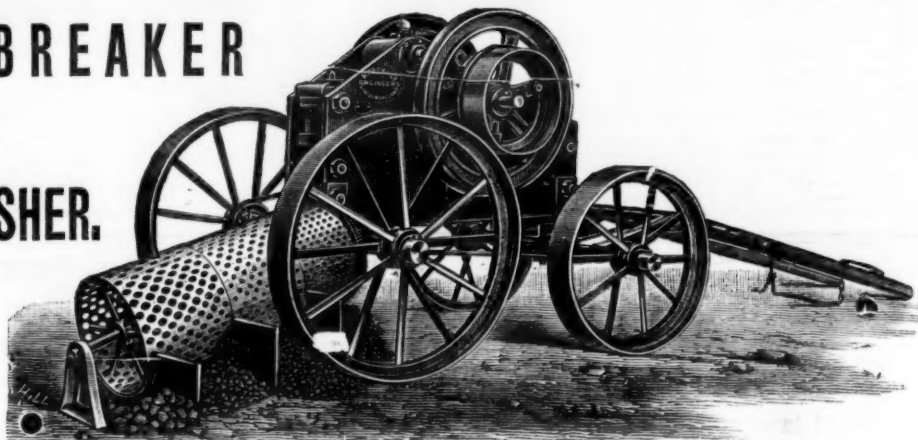
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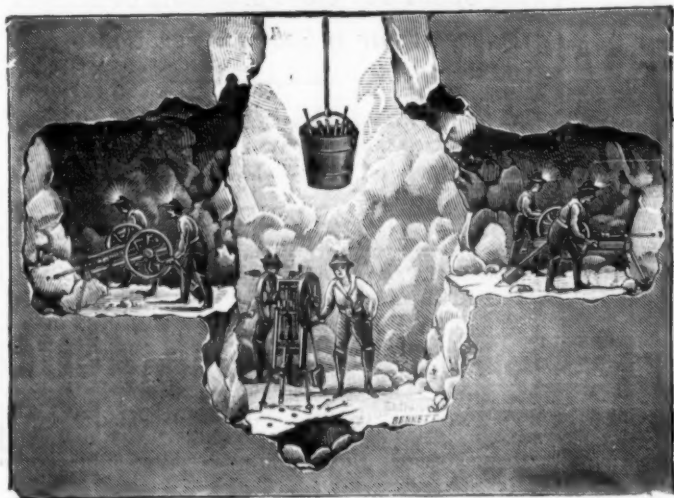
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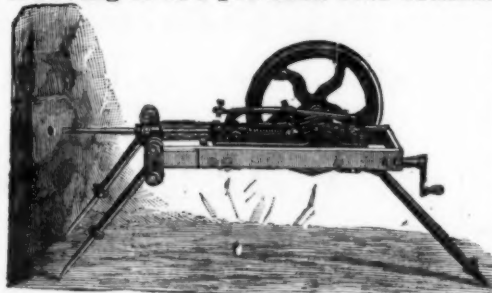
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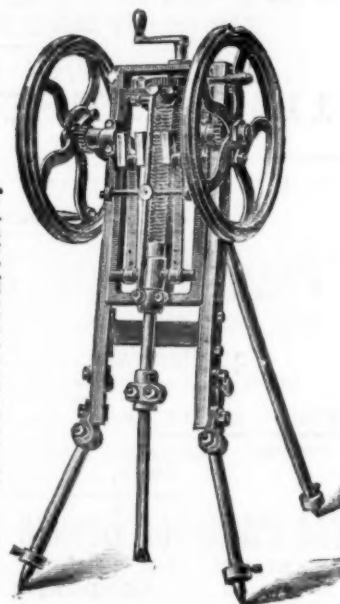


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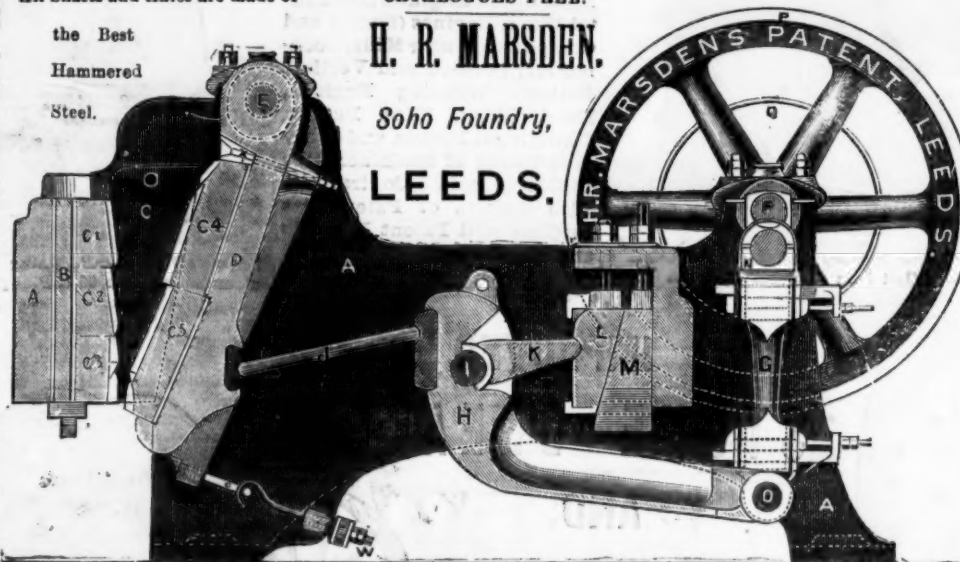
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